Codes of Modernity:
Infrastructures of Language and Chinese Scripts
In an Age of Global Information Revolution

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ABSTRACT

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This dissertation explores the global history of Chinese script reforms—the effort to phoneticize Chinese language and/or simplify the writing system—from its inception in the 1890s to its demise in the 1980s. These reforms took place at the intersection of industrialization, colonialism, and new information technologies, such as alphabet-based telegraphy and breakthroughs in printing technologies. As these social and technological transformations put unprecedented pressure on knowledge management and the use of mental and clerical labor, many Chinese intellectuals claimed that learning Chinese characters consumed too much time and mental energy. Chinese script reforms, this dissertation argues, were an effort to increase speed in producing, transmitting, and accessing information, and thus meet the demands of the industrializing knowledge economy.

The industrializing knowledge economy that this dissertation explores was built on and sustained by a psychological understanding of the human subject as a knowledge machine, and it was part of a global moment in which the optimization of labor in knowledge production was a key concern for all modernizing economies. While Chinese intellectuals were inventing new signs of inscription, American behavioral psychologists, Soviet psycho-economists, and Central Asian and Ottoman technicians were all experimenting with new scripts in order to increase mental efficiency and productivity. This dissertation reveals the intimate connections between the Chinese and non-Chinese script engineering projects that were taking place synchronically across the world. The chapters of this work demonstrate for the first time, for instance, that the

simplification of Chinese characters in the 1920s and 1930s was intimately connected to the discipline of behavioral psychology in the US. The first generation of Chinese psychologists employed the American psychologists' methods to track eye movements, count word-frequencies, and statistically analyze the speed of reading, writing, and memorizing in order to simplify and "rationalize" the Chinese writing system in an effort to discipline and optimize mental labor. Other chapters explore the issue of mental and clerical optimization by finding the origins of the Chinese Latin Alphabet (CLA), the mother of *pinyin*, in hitherto unknown Eurasian connections. The CLA, the pages of this work shows, was the product of a transnational exchange that involved Ottoman and Transcaucasian typographers as well as Russian engineers and Chinese communists who sought efficiency in knowledge production through inventing new scripts. Situating the Chinese script reforms at this global intersection of psychology, economy, and linguistics, this dissertation examines the global connections and forces that turned the human subject into a knowledge worker who was cognitively managed through education, literacy, propaganda, and other measures of organizing information, all of which had the script at the center.

The search for efficiency and productivity—the core values of industrialism—lay at the heart of script reforms in China, but this search was inseparable from linguistic orders and political ambitions. Even if writing, transmitting, and learning a phonetic script could theoretically be easier and more efficient than the Chinese characters, the alphabet opened a veritable Pandora's Box around the issue of selection: given the complex linguistic landscape in China, which speech was a phonetic script supposed to represent? There were myriad languages spoken throughout the empire and the subsequent nation-state, most of which were mutually incomprehensible. Mandarin as spoken in Beijing was different from that spoken in the south, and "topolects" or

regional languages such as Min or Cantonese were to Mandarin what Romanian is to English. As a linguistic life-or-death issue, phonetic scripts stood for the infrastructural possibilities and limitations in the representation of speeches. Some scripts, such as Lao Naixuan's phonetic script composed of more than a hundred signs, were capable of representing multiple Mandarin and non-Mandarin speeches; whereas others, such as Phonetic Symbols that only has thirty-seven syllabic signs, represented only one speech, i.e., Mandarin. Using Mandarin-oriented scripts to transcribe non-Mandarin speeches was like writing English with fifteen letters, hence the acrimonious disputes that fill the pages of this dissertation. Succinctly put, it was at the level of script invention that Chinese and non-Chinese actors engineered different infrastructures not only for laboring minds but also for the social world of Chinese languages. The history of information technologies and knowledge economy in China was thus inseparable from the world of speech and language, as each script offered a new potential to reassemble the written matter and the speaking mind in a different way.

"Codes of Modernity" thus conceptualizes the script itself as an infrastructural medium. A script was not merely a passive carrier of information, but an existential artifact. Building on an expanding literature on infrastructures, it endorses the observation that infrastructures, technologies, and the social world around them work in a recursive loop. An infrastructure is not just the physical object that permits the flow of information, goods, ideas, and people, but a sociotechnical product that enables the experience of culture, while imposing constrains on it at the same time. Like electricity grids, transportation systems, and sewage canals, the experience of scripts as infrastructures is the experience of thought worlds. After a long tradition of structuralism and poststructuralism that sought to understand the world through the semiotic

prism of language, “Codes of Modernity” argues that it is time for an *infrastructuralism* that excavates the indispensable media that enable the production of language and thought.

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lacked *jianzi*. But what matters the most is that he has been a brother who held my hand when I lost my sense of space and time, and held even tighter as I lost my language. So where do I put him?

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INTRODUCTION

> After structuralism, with its ambition to explain the principles of thought, primitive or modern, by way of a combinatorics of meaning, and post-structuralism, with its love of gaps, aporias, and impossibilities, its celebration of breakdown, yearning, and failure, its relish for preposterous categories of all kinds and love of breathless syntax—perhaps it is time for infrastructuralism. Its fascination is for the basic, the boring, the mundane, and all the mischievous work done behind the scenes. It is a doctrine of environments and small differences, of strait gates and the needle's eye, of things not understood that stand under our worlds.
>
> —John Durham Peters[1]

In 1892, Lu Zhuangzhang, a native of Fujian Province in Southeastern China, published a proposal to replace the Chinese writing system, extant for over three millennia, with a phonetic system of writing that he invented. Chinese characters consumed too much mental energy, he claimed, and the tremendous effort put into learning them obstructed the people of China from cognitive and national progress. Following Lu's revolutionary proposal, dozens of similar proposals for a phonetic script were published during the waning years of the Qing Dynasty (1644-1911). The next century witnessed an anarchy of scripts devised by educators, psychologists, government officials, publishing titans, linguists, librarians, and many others from different walks of life. These script engineers variously proposed to replace Chinese with Esperanto, to engineer indigenous signs to phoneticize the Chinese script, to adopt the Soviet Union's practice and Latinize all the languages spoken in China, or to reform the Chinese characters through simplifying them. This arduous project to revolutionize the Chinese script ended only in 1986, when the People's Republic of China (PRC) officially decided to keep the

[1] John Durham Peters, *Marvelous Clouds: Toward a Philosophy of Elemental Media* (Chicago: University of Chicago Press, 2015), 33.

Chinese writing system in its simplified form with an auxiliary phonetic alphabet known as *pinyin* to transcribe characters in Mandarin speech, which was chosen as the national pronunciation after long deliberations. How can we explain this urge to eradicate a writing system that stored thousands of years of social memory? And given the scale of the movement, why did it fail after almost a century of trying?

Script reforms were not particular to China during this period. Japanese scholars were discussing the merits of an alphabet in the late-nineteenth century; Vietnam abandoned the use of vernacularized Chinese characters in the early-twentieth; Turkey and Soviet Central Asian Socialist Republics followed due course from the 1920s through the 1940s; and other countries throughout the world went through similar experiences. Historians who were puzzled by this phenomenon have unanimously argued that script reforms were an extension of national language reforms. Yi Yŏn-suk, for instance, interpreted script reforms in Japan as part of an ideological and linguistic movement.[2] Geoffrey Lewis' analysis of Turkish script reforms also followed a comparable logic, as he denounced the eventual Latinization of the Turkish script as a "catastrophic success" in nationalism and language reform.[3] Lenore Grenoble examined the Latinization in the Soviet Central Asian Republics also under a similar rubric of language policy.[4] John DeFrancis and Chen Ping's works on Chinese script reforms subsumed the movement under language reforms as well.[5] According to this literature, nationalism was the primary catalyst behind script reform; scripts were merely auxiliary tools to invent national

[2] Yŏn-suk Yi, *The Ideology of Kokugo: Nationalizing Language in Modern Japan* (Honolulu: University of Hawai'i Press, 2010).

[3] Geoffrey Lewis, *The Turkish Language Reform: A Catastrophic Success* (Oxford: Oxford University Press, 1999).

[4] Lenore Grenoble, *Language Policy in the Soviet Union* (Dordrecht: Kluwer Academic Publishers, 2003).

[5] John DeFrancis, *Nationalism and Language Reform in China* (Princeton: Princeton University Press, 1950); Ping Chen, *Modern Chinese: History and Sociolinguistics* (Cambridge University Press, 1999).

languages. More recently, scholars began to examine the literary dimensions of script reforms. Some identified the movement as a product of "phonocentrism" à la Derrida, and examined the literary imaginations that new scripts inspired.[6] Others correctly gestured toward the connection between technological media and modern literature, but left the question of the script unresolved.[7]

While deeply informed and inspired by this scholarship, this dissertation departs from it, and reorients the history of script reforms as part of a global history of communication and information. "Codes of Modernity" explores the history of script reforms in China—the effort to phoneticize and/or simplify the writing system—as part of a global communications revolution that took place within an industrializing capitalist economy in the nineteenth century. As scholars have previously shown, after the opening of the treaty ports in mid-century, an ambitious era of industrialization and mechanization began to transform the Qing society, especially in the coastal regions, as new arsenals, factories, and shipyards were founded for military self-strengthening.[8] During the same period, western industrial breakthroughs in communication technologies quickly made their way into the empire. The iron hand press, the movable metal type, and other advanced printing technologies entered the Qing domains via Western missionaries, eventually

[6] Yurou Zhong, "Script Crisis and Literary Modernity in China, 1919-1958" (PhD dissertation, Columbia University, 2014); Chi Man Wong, "The Chinese Latinization Movement, 1917-1958: Language, History, and Politics" (PhD dissertation, New York University, 2013); Nergis Ertürk, *Grammatology and Literary Modernity in Turkey* (Oxford: Oxford University Press, 2011).

[7] Jing Tsu, *Sound and Script in Chinese Diaspora* (Cambridge: Harvard University Press, 2010); Seth Jacobowitz, *Writing Technology in Meiji Japan: A Media History of Modern Japanese Literature and Visual Culture* (Cambridge, Mass.: Harvard University Press, 2015).

[8] Albert Feuerwerker, *China's Early Industrialization: Sheng Hsuan-Huai (1844-1916) and Mandarin Enterprise* (Cambridge: Harvard University Press, 1958); Albert Feuerwerker, *The Chinese Economy, 1870-1949* (Ann Arbor: Center For Chinese Studies, the University of Michigan, 1995); Meng Yue, "Hybrid Science versus Modernity: The Practice of the Jiangnan Arsenal, 1864-1897," *EASTM* 16 (1999), 13-52; Benjamin Elman, *On Their Own Terms: Science in China, 1550-1900* (Cambridge: Harvard University Press, 2005), 355-395.

giving rise to print capitalism.[9] Meanwhile, telegraphic networks rapidly expanded in the late-nineteenth century, wiring the empire anew, and altering its communicative patterns.[10]

Nineteenth-century industrial capitalism and the concomitant globalization of communications technologies begot a political economy of communication that changed the power relations and sociotechnical processes in the production, distribution, and consumption of information.[11] These transformations thus precipitated a global *information* revolution that followed the new logic of industrialism that prioritized efficiency and productivity in information technologies and human-machine ensembles. Telegraphic transmissions, mechanized printing, and the scientific, governmental, and bureaucratic needs to manage information put pressure on the use of mental and clerical labor to produce, transmit, store, and consume knowledge. Chinese intellectuals were overwhelmed, for there was "too much to know," to borrow a phrase from Ann Blair.[12] In their search for new instruments to organize knowledge more efficiently, they attacked the extant Chinese script and its tens of thousands of logographic characters for being inefficient. For them, the Chinese script was the primary medium that needed a revolution to optimize cognitive and industrial productivity. The search for a new script in China, this dissertation

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[9] Christopher A. Reed, *Gutenberg in Shanghai: Chinese Print Capitalism, 1876-1937* (Vancouver: UBC Press, 2004); Cynthia Brokaw, *Commerce in Culture: The Sibao Book Trade in the Qing and Republican Periods* (Cambridge, Mass.: Harvard University Press, 2007).

[10] Erik Baark, *Lightning Wires: The Telegraph and China's Technological Modernization, 1860-1890* (Westport, Conn.: Greenwood Press, 1997); Yongming Zhou, *Zhongguo wangluo zhengzhide lishi kaocha: dianbao yu qingmo shizheng* (Beijing: Shangwu yinshuguan, 2013); Yongming Zhou, *Historicizing Online Politics: Telegraphy, the Internet, and Political Participation in China* (Stanford: Stanford University Press, 2006); Thomas Mullaney, *The Chinese Typewriter: A History* (Cambridge: MIT Press, 2017).

[11] The political economy of communication and information is usually treated within the paradigm of post-industrial information economy. I would like to suggest that the nineteenth-century communications revolution and industrializing information economy are fruitful areas to rethink the history of the post-industrial age. See, Vincent Mosco and Janet Wasko (eds.), *The Political Economy of Information* (Madison: The University of Wisconsin Press, 1988); Vincent Mosco, *The Political Economy of Communication* (Los Angeles: Sage Publications, 2009 [1996]).

[12] Ann Blair, *Too Much to Know: Managing Scholarly Information Before the Modern Age* (New Haven: Yale University Press, 2010). For a modern history of information as flood, see, James Gleick, *The Information: A History, A Theory, A Flood* (New York: Vintage Books, 2011).

argues, was at the forefront of the search for new orders of information in an industrializing knowledge economy that changed mental and clerical labor relations, and lasted until the advent of the computerized post-industrial age in the late-twentieth century. Succinctly put, during this era of global information revolution, script was the medium that organized the relations of information production in a modernizing knowledge economy.

The history of script reforms in China is thus a global pre-history of what has been variously dubbed as "post-industrial knowledge economy," "information society," and more recently, "cognitive capitalism."[13] The industrializing knowledge economy that this dissertation explores was built on and sustained by a psychological understanding of the human subject as a knowledge machine, and it was part of a global moment in which the optimization of labor in the production of information was a key concern for all modernizing economies of knowledge. While Chinese intellectuals were inventing new signs of inscription, American behavioral psychologists, Soviet psycho-economists, and Central Asian and Ottoman technicians and intellectuals were all experimenting with new scripts in order to increase mental efficiency and productivity. Examining the process of script engineering and the wide-range of historical figures involved in these reform projects, this dissertation reveals the intimate connections between Chinese and non-Chinese script reforms that were taking place synchronically across a modernizing and globalizing knowledge economy. The chapters of this work demonstrate for the first time, for instance, that the simplification of Chinese characters in the 1920s and 1930s was

[13] In arguing for a pre-history of the information age, I build on the critical scholarship on post-industrial knowledge economy. Manuel Castells, *The Rise of the Network Society, vol. 1* (Oxford: Blackwell Publishers, 1999); Daniel Bell, *The Coming of Post-Industrial Society: A Venture in Social Forecasting* (New York: Basic Books, 1999). For a cultural history of the information age, see, Alan Liu, *The Laws of Cool: Knowledge Work and the Culture of Information* (Chicago: University of Chicago Press, 2004). On cognitive capitalism and digital labor, see, Yann Moulier Boutang, *Cognitive Capitalism* (Cambridge, UK: Cambridge University Press, 2011); Tiziana Terranova, *Network Culture: Politics for the Information Age* (London: Pluto Press, 2004); Tiziana Terranova, "Free Labor: Producing Culture for the Information Age," *Social Text* 18.2 (2000), 33-58.

intimately connected to the discipline of behavioral psychology in the US. The first generation of Chinese psychologists employed the American psychologists' methods to track eye movements, count word-frequencies, and statistically analyze the speed of reading, writing, and memorizing in order to simplify and "rationalize" the Chinese writing system in an effort to discipline and optimize mental labor. Even the first late-Qing script reformers, this dissertation shows, ventured into new psychological understandings of brain, language, script, and labor through innovative appropriations of translated scientific knowledge. Other chapters explore the issue of mental and clerical optimization by finding the origins of the Chinese Latin Alphabet (CLA), the mother of *pinyin*, in hitherto unknown Eurasian connections. The CLA, the pages of this work shows, was the product of a transnational exchange that involved Ottoman and Transcaucasian typographers as well as Russian engineers who sought efficiency in mental labor and knowledge production through inventing new scripts. Situating the Chinese script reforms at this global intersection of psychology, economy, and linguistics, this dissertation examines the global connections and forces that turned the human subject into a knowledge worker who was cognitively managed through education, literacy, propaganda, and other measures of organizing information and communication, all of which had the script at the center.

Putting the history of script reforms at the core of a global information revolution, I re-evaluate the history of language reforms in China as an aftereffect of the technological and industrial transformations. The search for efficiency and productivity—the core values of industrialism—lay at the heart of script reforms in China, but this search was inseparable from linguistic orders and political ambitions. Even if writing, transmitting, and learning a phonetic script could theoretically be easier and more efficient than the Chinese characters, the alphabet opened a veritable Pandora's Box around the issue of selection: given the complex linguistic

landscape in China, which speech was a phonetic script supposed to represent? There were myriad languages spoken throughout the empire and the subsequent nation-state, most of which were mutually incomprehensible. Mandarin as spoken in Beijing was different from that spoken in the south, and "topolects" or regional languages such as Min or Cantonese were to Mandarin what Romanian is to English.[14]

From the start, script engineering was intimately tied to the politics of language in a technologizing environment. Some scripts, such as Lao Naixuan's phonetic script that contained more than a hundred signs, were capable of representing multiple speeches including Mandarin and non-Mandarin, whereas others, such as Phonetic Symbols that only has thirty-seven syllabic signs, represented only one speech, i.e., Mandarin. Using Mandarin-oriented scripts to transcribe non-Mandarin speeches was like writing English with fifteen letters, hence the acrimonious disputes that fill the pages of this dissertation. These issues may indeed be considered as the precedents to the present-day debates about language justice. Some of the late-Qing and Republican script engineers were much like contemporary language activists who take issue with the death of languages in a computerizing world order, and harness the technologies available to them to empower underrepresented language communities—some, for instance, re-engineer the scripts of these communities in order to receive recognition from the Unicode Technical Committee.[15] Reminiscent of these efforts, nineteenth- and twentieth-century script engineers

[14] Victor Mair, *What is a Chinese "dialect/topolect"? Reflections on Some Key Sino-English Linguistic Terms* (Philadelphia: Order from Dept. of Oriental Studies, University of Pennsylvania, 1991); Victor Mair, "Language and Script," in *The Columbia History of Chinese Literature*, ed. Victor Mair (New York: Columbia University Press, 2001), 19-57.

[15] Daniel Nettle and Suzanne Romaine, *Vanishing Voices: The Extinction of the World's Languages* (Oxford: Oxford University Press, 2000)*;* Moria Paz, "The Failed Promise of Language Rights: A Critique of the International Language Rights Regime," *Harvard International Law Journal* vol. 54, no. 1 (2013), 157-218; Kaveh Waddell, "The Alphabet That Will Save a People from Disappearing," *The Atlantic* (Nov. 16, 2016); Erica Machulak, "Texting in Ancient Mayan Hieroglyphs: What Unicode Will Make Possible," *Humanities*, vol. 39, no. 1 (Winter, 2018). The Department of Linguistics at University of California, Berkeley, is running the "Script Encoding

used phonetic scripts to give voice to various linguistic communities in China. As a linguistic life-or-death issue, phonetic scripts stood for the possibilities and limitations in the representation of speech communities. It was at the level of script invention that Chinese and non-Chinese actors engineered different instruments not only for laboring minds, but also for the social world of Chinese languages. The history of information technologies and knowledge economy in China was thus inseparable from the world of speech and language, as each script offered a new potential to reassemble the written matter and the speaking mind.

"Codes of Modernity" thus conceptually dismantles scripts and languages, and reassembles them in a different way. The power relations that shaped the materiality of scripts were indeed critical to the production and dissemination of knowledge and thought in a given community or across different communities. Scripts did not come secondary to languages; neither were they neutral representations of them. They were perhaps even more powerful than languages in changing the patterns of thought. David Damrosch, who worked on the technology of the cuneiform in ancient Mesopotamia, acknowledges the power of scripts in the following words:

> Scripts may illustrate the classic Sapir-Whorf hypothesis better than language does: writing systems profoundly shape the thought world of those who employ them, not for ontological reasons grounded in the sign system as such but because scripts are never learned in a vacuum. Instead, a writing system is often the centerpiece of a program of education and employment, and in learning a script one absorbs key elements of a broad literary history: its term of reference, habits of style, and poetics, often transcending those of any one language or country.[16]

Damrosch's words correctly identify scripts as instruments that determine the patterns of access to literary production; their reform, I would add, had the intrinsic power to change those patterns, and institute new habits of style and terms of reference. After all, what would China look like if

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Initiative" for underrepresented script and speech communities "to fund the preparation of script proposals that will be successfully approved by the Unicode Technical Committee." See, Deborah Anderson, "Welcome to the Script Encoding Initiative," http://linguistics.berkeley.edu/sei/ (accessed online, Feb. 26, 2018).

[16] David Damrosch, "Scriptworlds: Writing Systems and the Formation of World Literature," *Modern Language Quarterly,* vol. 68, no. 2 (June 2007), 200.

the Chinese Latinization Movement had indeed succeeded in annihilating the Chinese characters and installing radically new techniques of information retrieval and literary production in a variety of Chinese languages? Questions such as this one prompts us to reconsider scripts not only as tools that stood for the language(s) they were supposed to represent, but also as coding technologies that changed the physical and mental patterns of information access and production.

Scripts were indeed the codes to engineer new social and linguistic orders. In their alphabetical and non-alphabetical forms, they offered different possibilities to ponder the interface between technology, language, and society. At times, as in the case of the above-mentioned Lao Naixuan's script for multilingual representation, written signs were mobilized to propose alternative modes of social and linguistic existence. At other times, they were simplified to facilitate access to knowledge without destroying historical memory, as in the movement to simplify characters. And sometimes they were coopted by political parties as governmental instruments to impose a top-down order on information and society, such as the KMT's use of Phonetic Symbols or the PRC's use of *pinyin.* Script reform, or "code-switch," was therefore never merely a technical endeavor.[17] It was always intertwined with political views about what the society should look like; and I contend that a historical analysis of these codes offers a way to ponder what the society *could* have looked like.

In redefining scripts as codes, this dissertation conceptualizes the script as an infrastructural medium. It was not merely a passive carrier of information, but an existential artifact and an "ontological shifter."[18] In conceptualizing it as such, I draw on anthropologists,

[17] Lydia Liu draws attention to script reform as code-switch in her article, "Scripts in Motion: Writing as Imperial Technology, Past and Present," *PMLA*, vol. 130, no. 2 (2015), 375-383.

[18] In my description of scripts as "ontological shifters," I build on John Durham Peters' interpretation of Friedrich Kittler's philosophy of media technologies. "Media for Kittler," notes John Durham Peters, "are world-enabling infrastructures; not passive vessels for content, but ontological shifters." See, John D. Peters, *Marvelous Clouds: Toward a Philosophy of Elemental Media* (Chicago: University of Chicago Press, 2015), 25. For Peters' profound

media scholars, and historians of science and technology who have demonstrated the impact of infrastructural media on political processes. Infrastructures, technologies, and the social world around them, scholars have correctly argued, work in a recursive loop.[19] An infrastructure, as Alan Liu defines it, is not just the physical object that enables the flow of information, goods, ideas, and people, but a "social-cum-technological milieu that at once enables the fulfillment of human experience and enforces constrains on that experience." The intricate and mutually reinforcing relations that link infrastructural media to human culture and experience stand at the center of this recent literature and this dissertation. The experience of infrastructures, from electricity grids to transportation systems, to sewage canals, to software protocols, "*is* operationally the experience of culture."[20] Infrastructures are not givens, but sociotechnical products that shape and are shaped by social and political worlds. As such, the recognition of an infrastructure itself, as Brian Larkin reminds us, "comprises a cultural analytic that highlights the epistemological and political commitments involved in selecting [it]."[21] Recognizing scripts as

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and at times hilarious pontification on technological determinism, see, John D. Peters, "'You Mean My Whole Fallacy Is Wrong': On Technological Determinism," *Representations*, vol. 140, no. 1 (2017), 10-26.

[19] The history of infrastructures and modernity has been explored primarily by Paul Edwards, "Infrastructure and Modernity: Scales of Force, Time, and Social Organization in the History of Sociotechnical Systems," in *Modernity and Technology*, edited by Thomas J. Misa, Philip Brey, and Andrew Feenberg (Cambridge, Mass.: MIT Press, 2003), 185-225. On the history of information infrastructures, see, Geoffrey Bowker and Susan Leigh Star, *Sorting Things Out: Classification and Its Consequences* (Cambridge, Mass.: MIT Press, 1999). Infrastructural turn has been especially embraced by anthropologists. In a Heideggerian fashion, some have identified infrastructure as becoming visible only when it broke down. As others have argued, their remaking offers a window into the sociotechnical issues surrounding them. See, Antina Von Schnitzler, *Democracy's Infrastructure: Techno-Politics and Protest after Apartheid* (Princeton: Princeton University Press, 2016). For a review of this anthropological literature, see, Brian Larkin, "The Politics and Poetics of Infrastructure," *Annual Review of Anthropology* 42, no. 1 (2013), 327-343.

[20] Alan Liu, "Drafts for *Against the Cultural Singularity* (book in progress)." *Alan Liu,* 2 May 2016. http://liu.english.ucsb.edu/drafts-for-against-the-cultural-singularity (accessed online on February 23, 2018). (emphasis in the original)

[21] Larkin, ibid., 329-330.

infrastructures is indeed an analytic decision on my part to speak to the historical phenomena that surround the sociotechnical engineering of information societies.

Timothy Mitchell's influential work on the history of oil pipes and energy regimes, *Carbon Democracy*, is a powerful study that exemplifies the significance of the infrastructural turn in rethinking historical and political processes. Mitchell argues that in the nineteenth century, when energy production relied on coal mines, the physical—even molecular—quality of coal gave the working class a political power that it had not possessed before. The mining of coal took place on a single channel that connected the mine and the workers to the networks of transportation. A labor strike thus had the power to cut the one and only channel that the production and distribution of energy relied on. The transition from coal-based to oil-based economy, Mitchell contends, was not the result of a search for increased efficiency and productivity, but of the techno-political assemblies that oil pipes permitted. Oil pipes had the means to distribute energy over a network of pipes, which diminished the power of workers, for even if a strike could sever one channel, energy could be redistributed through different channels. Mitchell notes that the Western elites' decision to turn to oil was a techno-political decision to consolidate power over energy supplies by curbing the political strength of workers. The process involved scientists, experts, workers, and politicians as well as coal scuttles and oil pipes. Thinking about the history of energy regimes as an outcome of the interconnection between infrastructural media and power relations, *Carbon Democracy* attests to the alliances required in the making of sociotechnical worlds—alliances "that do not respect any divide between material and ideal, economic and political, natural and social, human and non-human."[22]

[22] Timothy Mitcell, *Carbon Democracy: Political Power in the Age of Oil* (London: Verso, 2011), 7. It is important to stress the difference between Mitchell's emphasis on the "alliance" between humans and non-humans. It goes beyond Latour's project to give agency to matter, which ultimately risks eliminating the necessary space needed for

Scripts were the oil pipes, or perhaps coal mines, of information societies, enabling the production, transmission, organization, and consumption of knowledge and information. A script was the stuff of the network that weaved together engineers and government officials, print machines and typesetters, telegraph operators and codebooks, students and primers, publishing houses and dictionaries, librarians and card catalogues, and a plethora of human and non-human agents. Its reform generated new alliances, and thus permeated and affected every corner of the society. Especially in the case of phonetic writing, scripts engendered the possibilities for an "alphabet democracy" that challenged the place of monolingualism in a modernizing Chinese nation-state.

Script reforms that took place in different national spaces are also testimony to scripts as infrastructural media. Indeed, the conceptual framework that I am drawing echoes in the words of a Turkish author, Ahmet Haşim (1884?-1933). Writing just a few days after the Turkish Republic's promulgation of the new Latin alphabet that replaced the Arabic alphabet in 1928, Haşim perspicaciously used urban infrastructure as a metaphor for script:

> Those words that originate from the throat and nose cannot find voice in the new alphabet's keyboard to make themselves heard. Now, like people with hoarse voices, these words shout out muffled and ugly cries in a sentence. Eventually, as language follows its own road, it will bury these words that lost their music and became a burden. Like the broken pavements of old and debilitated streets that are now turned into boulevards, we are witnessing an act of reconstruction. On these new streets, words with cones and robes will not be able to walk without appearing ridiculous. Right now, [we can only] watch with amusement the new ideas, as they come and go on these modern streets.[23]

Wouldn't it indeed be strange to watch words with cones and robes walk the streets of Istanbul and Ankara, or of Shanghai and Beijing? Ahmet Haşim was indeed correct to portray the new alphabet not merely as linguistic reform, but also as an infrastructural one that brought

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critical thought and political action. See, Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network Theory* (Oxford: Oxford University Press, 2005).

[23] Ahmet Haşim, "Lisan İmarı [Language Construction]," *İkdam* (3 Kanun-ı evvel, 1928).

acoustic, aesthetic, social, and intellectual repercussions. Born in the multilingual Ottoman city of Baghdad in late-nineteenth century, Haşim was a proponent of the late-imperial literary movement that revitalized the use of Persian and Arabic words, opposing vernacularization in an effort to find an alternate literary voice for Ottoman Turkish literature. The new Latinized letters of the Turkish Republic thus startled him. These letters introduced a new infrastructure to linguistic life, like the newly paved roads of urban life. Earlier sounds written in Arabic letters were soon to be extinct on the streets of modernity. Nothing much could be done, but to amusingly observe these new words, these new republican subjects, clumsily navigate the streets. At least according to Haşim, they were not even meant to walk on them.

Haşim's bemused critique offers a phenomenological lens to observe the social lives of linguistic infrastructures that go beyond the specific Turkish context. A script animated life as much as it constrained, structured, and imposed order on it. It induced contradictory emotions of hope, fear, frustration, discontentment, and even amusement to the speakers of languages, like infrastructures did to the inhabitants of urban spaces. Haşim's use of urban infrastructure as a metaphor for script stands in playful contrast to poststructuralist scholars, from Claude Levi-Strauss to Roland Barthes, who would read the city merely as a discursive text, a semiological space.[24] For Haşim, on the other hand, a new script constructed new arteries for sounds, ideas, and concepts; it built the roads on which words could walk, stumble, and fall; it even had the intrinsic power to bury language to the ground. Script was the stuff that produced the city's

[24] Claude Levi Strauss, *Tristes Tropiques*, translated by John Russell (New York: Criterion Books, 1961), 183-234; Roland Barthes, "Semiology and the Urban," in *Rethinking Architecture: A Reader in Cultural Theory*, edited by Neil Leach (London: Routledge, 1997), 158-172. The genealogy of poststructuralist emphasis on signification and discourse, and its bracketing of the conceptual problem of writing and script, can be traced back to Ferdinand de Saussure, the prophet of structural linguistics and poststructural philosophy. See, Ferdinand de Saussure, *Course in General Linguistics*, translated and annotated by Roy Harris (London: Duckworth, 1983).

discursive space. If the city was a "text," then the script was its infrastructure, inseparable from the text itself.

Perhaps this is a good place to endorse John Durham Peters' elegant proposal for "infrastructuralism" as a new turn that challenges the earlier paradigms of thought. As the epigraph of this introduction reads, Peters suggests that after structuralism and poststructuralism, it is time for infrastructuralism: "Its fascination is for the basic, the boring, the mundane, and all the mischievous work done behind the scenes. It is a doctrine of environments and small differences, of strait gates and the needle's eye, of things not understood that stand under our worlds."[25] Script *is* the infrastructural medium that stands under, and even above—not metaphorically as in Haşim, but literally. It is printed on pages, engraved in metal types, handwritten on ledgers, letters, and registers, and inscribed on stones and walls. It is the fundamental medium of written communication without which information literally cannot flow between matter and mind. The techno-politics of linguistic infrastructures invites us to reconsider the poststructuralist penchant for discourse, for scripts are as crucial as the politics of meaning and signification to understand the place of the human in the world of language, technology, and society. If it is indeed time to go beyond (post)structuralism, "Codes of Modernity" can be described as an effort to explore the infrastructures of language and thought.

This dissertation thus explores the alphabets, syllabaries, and non-alphabetical writing systems as infrastructures that emerged out of and embedded within them "forms of desire and fantasy."[26] As such, I disagree with the scholarship that dismisses the script reform movement in China as an Orientalist and colonial left-over. Thomas Mullaney has recently argued that script

[25] John D. Peters, *Marvelous Clouds*, 33.

[26] Larkin, ibid., 329.

reforms in China were merely the product of a pervasive social Darwinist discourse that exalted the alphabet and ridiculed the Chinese characters as "backward." Exploring the history of Chinese typewriters, Mullaney claims that Chinese engineers have succeeded in saving the Chinese characters from the tyranny of the alphabet; and further argues that the Chinese characters have even eclipsed the supposed efficiency of the alphabet in the age of computers, and that the Chinese script has become a world script.[27] Within this framework, all of the script reformers in China run the risk of being designated as Orientalist puppets whose desires were derivatives of their colonial masters. Instead of conflating script reforms with colonial modernity and creating a straw man, I believe that it is more meaningful to explore the political intentions that were embedded in the alphabets, syllabaries, and simplified writing systems that historical actors engineered for the Chinese society. Otherwise, a rightful attack on Western alphabet fetishism may result in an equally problematic fetishization of Chinese characters, or of any other writing technology.

In exploring the history of scripts, "Codes of Modernity" refrains from making a normative claim on what constitutes a "better" script. Neither does it take the Chinese writing system as the primary identifier of Chineseness. On the contrary, I contend that other scripts used by Mandarin-speaking communities, such as the Arabic script used by Chinese Muslims, or those used by the non-Han communities living in China, and even the scripts that were engineered for linguistic communities that have nothing to do with China, such as those in Transcaucasia and the Soviet Union, are crucial to understand the complex history of script reforms in the multilingual and multi-ethnic landscape of China. Breaking down the postcolonial binary paradigm of China versus Western colonialism, this dissertation demonstrates that

[27] Thomas Mullaney, *The Chinese Typewriter: A History* (Cambridge: MIT Press, 2017).

alphabetization in China was part of a global history of information economy that included various Western and non-Western actors, all of whom searched for new social orders of language, knowledge, and information by inventing new scripts.[28] Script reforms were not simply the product of Orientalist discourses, but of the political economy of communication that commodified information and altered the relations of its production, which opened up new political spaces to reassemble the material and the human world in alternative ways. "Codes of Modernity" seeks to understand the historical conditions, motivations, intentions, ambitions, successes, and failures of script engineers as a gateway into questioning the limits and possibilities that new media gave birth to.[29] It probes the multiple histories of the Chinese information society through the manifold histories of the Chinese script, and suggests that the history of information society in China was constructed through the historical actors' political engagements with modern information technologies. Scripts, I argue, were the infrastructural media that encoded modernity in China.

Chapter Outline

Composed of nine chapters, *Codes of Modernity* contextualizes the Chinese scripts within a global moment of script reforms. The first chapter gives an account of the birth of script

[28] Here, I am building on Arif Dirlik's critique of postcolonialism, which is dated but still relevant. See, Arif Dirlik, "The Postcolonial Aura: Third World Criticism in the Age of Global Capitalism," *Critical Inquiry* 20 (Winter, 1994), 328-356.

[29] Some of the works that have been influential in my investigation are: Tsuen-hsuin Tsien, *Written on Bamboo and Silk: The Beginnings of Chinese Books and Inscriptions* (Chicago: University of Chicago Press, 1962 [1969 printing]); Feng Li and David P. Branner, *Writing & Literacy in Early China: Studies from the Columbia Early China Seminar* (Seattle: University of Washington Press, 2011); David Lurie, *Realms of Literacy: Early Japan and the History of Writing* (Cambridge, Mass.: Harvard University Press, 2011). Recent anthropological studies of literacy have also stressed the politics of writing. See, Francis Cody, *The Light of Knowledge: Literacy Activism and the Politics of Writing in South* India (Ithaca: Cornell University Press, 2013); Kelda Jamison, "Hefty Dictionaries in Incomprehensible Tongues: Commensurating Code and Language Community in Turkey," *Anthropological Quarterly*, vol. 89, iss. 1 (2016), 31-62. On the history of new media, see, Lisa Gitelman, *Always Already New: Media, History, and the Data of Culture* (Cambridge, Mass.: MIT Press, 2006).

engineering in China by following three turn-of-the-century script reformers—Cai Xiyong, Wang Bingyao, and Shen Xue—who articulated a theory of literacy through an intellectual engagement with telegraphy, brain, and mental labor. Their proposals for a phonetic script, I suggest, were an outcome of growing industrialization, bureaucratization, and an expanding telecommunication network that precipitated an unprecedented need for speed in clerical work and discipline in mental labor. They proposed to replace Chinese characters with a phonetic script in order to expedite the cerebral process of synthesizing information, and resolve the empire-wide cognitive crisis.

The resolution of this crisis took two different paths. Some argued for the adoption of a phonetic writing system, whereas others for the simplification of Chinese characters themselves. The second and third chapters explore the former camp of phoneticization and the linguistic problems that it immediately generated. The second chapter takes a chronological step back to examine the history of missionary Romanization in the nineteenth century and its connections to a global network of missionary printing enterprises. The history of alphabetization, in particular Romanization, in the non-Western world was closely linked to the industrial revolution and the new metallurgical know-how that enabled the invention of smaller, cheaper, sturdier, and more efficient printing technologies. Euro-American missionaries, I contend, were the primary agents who brought a typographical mindset to China and the rest of the world. Yet, as the third chapter shows, Chinese reformers who sought to alphabetize Chinese languages at the turn of the century appropriated this mindset into their local information politics. Instead of following the Roman alphabet, they devised phonetic writing systems that were graphically innovative and conspicuously non-Roman. This native project of alphabetization, I argue, reflected an effort to claim a grammatological and linguistic sovereignty in an internationalizing world order. During

this process of inventing a phonetic script, Chinese reformers had to confront the issue of a multilingually fragmented society. Even though the issue was temporarily resolved in the Conference for the Unification of Pronunciation in 1913, the thorny issue of multilingualism versus monolingualism continued to haunt the techno-politics of script invention in China during the following decades.

It was the linguistic mess that the reformers found themselves in that partially gave rise to the movement to simplify Chinese characters. The fourth and fifth chapters thus bracket the Chinese phoneticization project, and instead explore the reform and rationalization of the Chinese writing system itself, together with its connection to the mass literacy movement of the 1920s and 1930s. Examining the works of Chinese psychologists trained at Columbia Teachers College, these chapters investigate the simultaneous development of Chinese intelligence tests and the psychological rationalization of the Chinese writing system, i.e., simplification of Chinese characters, statistical measurement of character-frequencies, and psychological reading tests—all of which, I argue, was part of a greater effort to optimize mental labor. The taxonomy of human subjects according to their cognitive skills through intelligence tests, and the psychological study of writing technologies and the consequent simplification of characters were a form of "cognitive management," in which psychologists and educators constructed human subjects as information machines whose cerebral process of synthesizing knowledge could be organized, rationalized, and optimized through tests and measurements. These two chapters thus read the history of mass literacy in Chinese characters through the politics of measurement and the political economy of information.

The sixth and seventh chapters again turn to the techno-politics of alphabet invention. They take a step away from China to investigate the origins of the Chinese Latinization Movement

(CLM), which was the largest movement to eliminate Chinese characters and invent a multilingually literate society, in which Mandarin would not be the sole linguistic token of exchange. As earlier scholarship has shown, the CLM started in the late 1920s in the Soviet Union as part of the USSR's socialist-cum-internationalist Latinization project, and metamorphosed into *pinyin* in 1958, which is still the PRC's official method of transcribing Chinese characters into the Latin alphabet. In contrast to the earlier literature, I find the origins of this movement in the Ottoman and Transcaucasian intellectual circles. In the sixth chapter, I trace the intellectual and technological origins of the USSR's Latinization movement to the Russo-Ottoman intellectual circles in the 1860s. Just like in China, the introduction of telegraphy and movable type printing technologies into the Muslim world triggered a movement for script reform in Turkish, Persian, and Arabic languages, which were all written in the Arabic script with slight variations. What started as a typographical and cognitive need to expedite the material process of knowledge production evolved into a Latinization movement in Turkic-speaking nations in the early twentieth century. This Turkic movement, I show in the next chapter, was the origin of the USSR's Latinization Movement and the Chinese Latinization Movement.

Latinization started as a project for Turkic languages written in the Arabic script, but in the 1920s, it became entangled with the Taylorist theories of Aleksei Gastev (1882-1939), Russian psychological studies of labor optimization, and futurist visions of human-machine symbiosis in the USSR. Russian intellectuals re-engineered the Turkic Latinization Movement within the framework of a socialist human-machine integration and mechanical optimization of mental labor. They, together with Turkic intellectuals, sought to create an internationalist information society in which each nation would be perfectly in sync with the central component of any given information technology, i.e., the script. Thus, the seventh chapter narrates the revolutionary

history of this socialist human-machine integration through the creation of a common Latin alphabet for all nations, of which Chinese was one. These two chapters therefore expand the geography of script reform to include a greater Eurasia, and further show how the first Chinese Latin Alphabet was in fact a copy of the Unified New Turkic Alphabet—an untold saga in the non-Euro-American transnational flow of technologies that raise questions about the unexplored role of non-Roman and non-Chinese scripts in the creation of a Chinese information society. The seventh chapter in particular dwells on the significance of the Arabic script used by the Dungans, Chinese Muslims living in Central Asia, which became the basis on which the Chinese Arabic letters, known as *xiao'erjin*, were Latinized according to the Unified New Turkic Alphabet.

The eighth chapter narrates the brief life of the Chinese Latin Alphabet (CLA), from its birth in 1928 to its death in 1940, as it transgressed the borders between the Soviet Union and the Republic of China. In the Soviet Union, the final shape of the CLA was determined by the Chinese Communists and Russian linguists in 1931, and in the following years it was implemented in the Far Eastern USSR that had the largest community of Chinese immigrants. Simultaneously, the CLA infiltrated into China with its promise to provide each local speech the infrastructural instrument for cultural and literary progress. In China, the Chinese Communist Party-endorsed CLA's main rival was the Nationalist Party's (KMT) Phonetic Symbols (*zhuyin fuhao*), an updated version of the National Phonetic Alphabet invented in 1913, which solely represented Mandarin. The battle between the CLA and Phonetic Symbols took place within a raging information and psychological warfare between the two parties, and it displayed two competing projects to reassemble the Chinese information society. The failure of the CLA was not only due to its defeat in the hands of the KMT; it was also an outcome of the Soviet Latinization Movement's demise and the outbreak of the War Against Japan (1937-1945), which

brought the entire script reform movement to an abrupt end. In addition to the stricken wartime circumstances in China that challenged the print and dissemination of the CLA, Stalin ordered the Cyrillization of all languages and scripts in the Soviet Union in 1938. With its major ideological pillar broken, the Chinese Latinists who had until then been active in the movement turned away from multilingualism and character-destruction. In 1940, two years after Stalin's dictum, the once-Latinists of the CCP issued a manifesto that put an end to the short-lived internationalist-cum-socialist experiment.

The last chapter follows the metamorphosis of the Chinese Latin Alphabet into *pinyin*, and re-evaluates the latter's history as an extension of the KMT's wartime frontier projects, rather than a natural outcome of the Chinese Latinization Movement. Invented in 1958, *pinyin* is usually considered to be the end of the Chinese alphabetization movement. In contrast to received wisdom, I argue that *pinyin* was the starting point for the PRC's linguistic colonization of the multi-ethnic frontiers, inhabited by hundreds of ethnic minorities, including Tibetans, Mongols, Uyghurs, Zhuang, Yi, and many others. Similar to the British Empire's use of linguistic engineering methods to build what Churchill called "an empire of the mind," *pinyin* was an instrument of domination in the PRC's frontiers. This chapter starts the history of *pinyin* with the frontier linguistic policies of the KMT during the War Against Japan, when the frontiers became critical spaces for national security and targets of constant government propaganda. The teaching of Mandarin to ethnic minorities through Phonetic Symbols was an extension of information and psychological warfare, and it continued into the 1970s with the PRC, where script engineering, propaganda, geopolitical security, and mass literacy were inextricably bound to one another. In other words, starting with the war, script reforms were no longer an exclusively Han project; they were intricately linked to the history of information management in the multi-ethnic frontiers.

This propaganda origin of Mandarin education in frontier regions is significant to realize, not only because it continued under the PRC with *pinyin*, but also because it seems to have gone through another phase of metamorphosis and expanded to the rest of the world in the twenty-first century through the Confucius Institute, a peculiar organization that is intimately linked to the Propaganda Bureau.

I end my dissertation with an epilogue on the 1980s. The State Council of the PRC officially announced in 1986 that *pinyin* was not going to replace the Chinese characters; nor was it going to replace the scripts of ethnic minorities. This shift in script policy, I would like to suggest, was as much an outcome of the PRC's failure in the frontiers as of the new information age of the binary code, which fundamentally altered the infrastructural and political economic conditions of knowledge work and information production. Post-socialist economic thought and infrastructure-building brought new techno-political imaginaries to turn a multi-national socialist polity into a computerized network of nationalities. In the early 1980s, the PRC allowed the frontier minority scripts to have their own telegraphic codes for the first time; and Language and Script Committees in the frontiers were given the duty to develop information processing technologies using local scripts. With this, a century of script reforms in China came to an end, and the sociotechnical worlds of scripts embarked on a new journey.

"Codes of Modernity" thus charts the global historical contingencies in the creation of a Chinese information society before the age of computers. Through narrating the multiple histories of the Chinese script, it explains the integrated history of information technologies and human minds, and the alternative information societies that could have been formed. The disjointed histories of the Chinese script, I suggest, may provide a useful framework to think about the future of our information society in which the integration of humans and codes is

taking place in an ever-expanding economy of knowledge, and infrastructures become places of critical inquiry and political transformation. Examining these historical episodes may perhaps revive our imagination of better futures for the social worlds of information.

Chapter 1

Late Qing Efficiency: Telegraphic Wires, Phonetic Scripts, and Cerebral Consciousness

In 1896, Shen Xue (?-?), a young and aspiring medical student in Shanghai, penned an influential treatise on the need to phoneticize the Chinese writing system, called *Primordial Sounds for a Prosperous Era*.[30] Chinese characters, claimed Shen, were blocking telegraphic wires, clogging the arteries of the brain, preventing the advancement of scientific knowledge, and obstructing a Confucian-cum-Buddhist union between the self and the universe. A phonographic writing system, by contrast, had the power to unite the outside world with the brain, Shen further argued, because "nouns", "adjectives," and "verbs" respectively triggered the three parts of the brain, pons varolii (*zhongnao*, "middle brain"), cerebrum (*danao*, "big brain"), and cerebellum (*xiaonao*, "small brain"). The closer the distance between speech and writing, argued Shen, the faster the union was between humans, machines, the self, and the universe.

In terms of his proposal to replace Chinese characters with a phonetic script, Shen's treatise was in fact not very surprising. Chinese scholars' penchant for phonetic scripts had started in the early 1890s, and there were several precedents to Shen. In 1892, Lu Zhuangzhang in Xiamen (Amoy) in the southeastern province of Fujian claimed that learning Chinese characters consumed too much mental energy, and wrote *A Primer at a Glance*, one of the first attempts to write a Chinese language, the Amoy vernacular, with a phonetic alphabet.[31] There were in fact

[30] Originally written in English as *Universal Script*, a copy of which has not survived, Shen translated his work into Chinese with the title *Primordial Sounds for a Prosperous Era* (*shengshi yuanyin* 盛世元音). Xue Shen, *Shengshi yuanyin* (Beijing: Wenzi gaige chubanshe, 1956 [1896]).

[31] Amoy vernacular was one of the first speeches to be Romanized by the missionaries, but the missionary involvement in alphabetization will be the subject of the next chapter. Phoneticization became a "Chinese" project, led by Chinese scholars, only in the 1890s. Jing Tsu has shown that there were overseas Chinese whose works on phoneticization preceded Lu Zhuangzhang. See, Jing Tsu, "Chinese Scripts, Codes, and Typewriting Machines," in

dozens of proposals to phoneticize the Chinese writing system in the earlier decades and centuries, going back to the Mongol Yuan dynasty's failed Phagspa Script. As I will explain in the next chapter, there were hundreds of missionaries who strived to Romanize Chinese languages throughout the nineteenth century. But there was something different about this last decade of the century. The frequency of proposals by Chinese scholars to adopt phonetic scripts unexpectedly and rigorously increased in the 1890s, especially after the defeat in the Sino-Japanese War (1894-95), and it reached rocket high in the early 1910s, when there were at least fifty different proposals for phoneticization.[32] When Shen Xue published his proposal in 1896, there were three more major proposals. One by Cai Xiyong 蔡錫勇 (1850-1896), a senior diplomat, manager, and accountant from Fujian who worked across China and abroad; one by Wang Bingyao王炳耀 (?-?), a Cantonese pastor working for the London Missionary Society; and one by Li Jiesan (? - ?), a scholar from Fujian. Three of these reformers —Cai Xiyong, Wang Bingyao, and Shen Xue— constitute the core of this chapter.

What set Shen's treatise apart from others was his bold probe into the cerebro-mental interface between writing and language. In the long history of Chinese medicine, brain (*nao* 腦), although important in pharmacology and sexology, had never been the seat of consciousness, i.e., the sovereign of the body that controlled physical actions, regulated cognition and sensation, and gave rise to thoughts and imagination. *Yellow Emperor's Inner Canon* (*huangdi neijing* 黃帝內經) from the first century BC, one of the most authoritative sources on Chinese medical

Science and Technology in Modern China, eds. Jing Tsu and Benjamin Elman (Leiden, Boston: Brill, 2014), 125-131.

[32] Dao Xing, "Duyin tongyi hui gongding guoyin zimu zhi gaishuo [A Brief Account of the Conference of National Pronunciation's Decision of National Phonetic Alphabet]," *Dongfang zazhi*, vol. 10, no. 8 (1914), 11.

traditions, designated five central internal organs (*zang* 臟) and six hollow organs (*fu* 腑).[33] The five central organs corresponded to five senses (*wuguan* 五官): the eye was linked to the liver, the nose to the lungs, the mouth to the spleen, the tongue to the heart, and the ear to the kidney. Among these organs heart (*xin* 心) was central to thought, and kidney (*shen* 腎) to bodily health since it regulated the body's vital energy, *qi* 氣, that flowed through the organs, bodies, and the universe.[34] Why, then, did Shen Xue deem the brain to be central to language and thought? And what did it have to do with the script?

The increasing number of script reformers from the 1890s onward was symptomatic of a deeper affliction, precipitated by industrialization and telegraphic communication. After the Nanjing Treaty in 1842, when British gunboats opened Chinese treaty ports to foreign capital, and the Taiping Rebellion (1850-1861) in southern China claimed millions of lives and signaled a domestic imperial crisis, the Qing empire embarked on a path of transformation, importing scientific and technological know-how, and building factories and arsenals along with higher learning institutions. The new industrial, bureaucratic, and governmental apparatuses that came out of the "Self-Strengthening Movement" (1861-1895) increased the need for labor, not only for manufacturing goods, but also for transcribing, recording, and organizing a steadily growing

[33] The writing of *Yellow Emperor's Inner Canon* was attributed to the mythical Yellow Emperor, but it was in fact a collection of different works that were compiled around first century BC. The two books that are claimed to be extant parts of the *Inner Canon* did not exist before the eighth century. These two parts are "Basic Questions (*suwen* 素問)" and "Divine Pivot (*lingshu* 靈樞)." See: Nathan Sivin, *Traditional Medicine in Contemporary China: A Partial Translation of Revised Outline of Chinese Medicine (1972)* (Ann Arbor: Center for Chinese Studies, University of Michigan, 1987), 5.

[34] There were exceptions to this dominant paradigm. Jesuits translated western anatomical knowledge in the seventeenth century, but the circulation of these translations was not very wide. Hugh Shapiro, "Chinese and Western Medicine," in *Medicine Across Cultures: History and Practice of Medicine in non-Western Cultures*, eds. Helaine Selin and Hugh Shapiro (Dordrecht; Boston: Kluwer Academic Publishers, 2003), 363; Daniel Asen, "'Manchu Anatomy': Anatomical Knowledge and the Jesuits in Seventeenth- and Eighteenth-Century China." *Social History of Medicine*, vol. 22, no.1 (2009), 23-44.

archive of information. A phonetic script seemed to be an expedient instrument to supply the institutions with new workers/recorders as quickly as possible.

When the Great Northern Telegraph Company of Denmark introduced telegraphy to China in 1871, and when telegraph wires surrounded the empire in the next two decades, the alphabet-based infrastructure of telegraphic communication added a new layer of urgency to script reforms. Originally designed for the 26 Roman letters of the English language, the American entrepreneur Samuel F. B. Morse's telegraphic Morse Code posed the greatest infrastructural obstacle to the quintessentially non-alphabetical Chinese writing system. The technical issue was circumvented, but never really resolved, through assigning four-digit numbers to Chinese characters. The mismatch between the alphabet and the Chinese characters, mediated only through numbers, not only turned out to be an economical burden,[35] but also caused time-loss due to the added labor of translating characters into numbers and numbers into characters. For many reformers of the period, casting the Chinese characters aside was the best option to optimize clerical labor-time and increase the speed of information circulation domestically and internationally.

In the 1890s, then, the expansion of the alphabet-based telegraphic network along with industrial, bureaucratic, and governmental apparatuses that demanded a more efficient use of clerical labor, and the increasing call for consuming western scientific and technological knowledge put an unprecedented pressure on the use of mental labor, i.e., on the cognitive power to produce, transmit, and consume information. Following the dynasty's defeat at the hands of the Japanese in 1895, these needs were felt even more acutely, as Qing reformers realized that a much larger clerical and mental labor force was necessary to fuel the industrializing economy.

[35] Thomas Mullaney, "Semiotic Sovereignty: 1871 Chinese Telegraph Code in Historical Perspective" in *Science and Technology in Modern China*, eds. Jing Tsu and Benjamin Elman (Leiden, Boston: Brill, 2014), 164-65.

The focus thus shifted from the concentration of knowledge in the hands of the elite to its dissemination among a wider population. As calls for mass literacy started to occupy a central stage among the scholarly community, a phonetic script was deemed to be the easiest instrument to reduce the labor-time necessary to learn the official language, and partake in a homogenized mental labor force. In short, for late-Qing Chinese scholars, and later for Republican intellectuals and those of the PRC, neither the economy of literacy nor that of telegraphic transmission in Chinese complied with the modern political economy and infrastructure of information, which demanded increased speed and less cost. In a new capitalist world order that upheld the industrial values of efficiency and productivity, the Chinese writing system turned out to be a linguistic coprolite.

Shen Xue's venture into the hitherto uncharted territories of cerebral cognition and information technologies was thus a response to this pressure on the use of mental energy in an industrializing and information-driven world. Shen not only rendered a new articulation of the problem itself through an encephalocentric imagination of the body, but also a potential solution to it. Shen's ideas enjoyed a considerable circulation as well, since Liang Qichao, one of the foremost intellectuals and reformers of the day, wrote a preface to his treatise, and published it in one of the earliest editions of *Shiwubao*, the prominent Chinese reformist journal, in August, 1896. With Liang's endorsement, Shen's treatise was hailed as a milestone in the history of Chinese script reforms.

This chapter is built around three script reformers in 1896, who represent the infrastructural and political economic issues that lie at the heart of two intertwined crises of the late Qing: the information crisis and the cognitive crisis. The first two sections examine the script proposals of Cai Xiyong and Wang Bingyao to chart the impact of industrialization, bureaucratization, and

telegraphy on the use of mental and clerical labor. The third section elaborates on the late-Qing theories of brain and mental labor through Shen Xue's script proposal. Fusing a Confucian-cum-Buddhist view of the cosmos and the human mind with modern technologies of information, Shen's proposal was both a metaphysical and a material search for cognitive progress. In terms of being an early example that lay bare the contradictions within cognitive capitalism, i.e., its promise of cognitive enhancement through technologies and its simultaneous subsumption of cognitive labor under capital, this search occupied a crucial place in the global history of mental labor. Through a direct engagement with changing practices of work and information technologies, late-Qing scholars reinvented the human as a mentally laboring subject, for whom the optimization of writing technologies was an ontological necessity.

I. Cai Xiyong: Industrialization, Clerical Labor, and Script

Cai Xiyong, a script reformer who is venerated as the inventor of Chinese stenography, was a native of Longxi, Fujian. He entered Language School in Canton in 1864. In three years, he made it to the Capital Language School in Beijing, and put his skills to use with Chen Lanbin 陈兰彬, the first Chinese ambassador to the United States. In 1878, he followed Chen to the US, Japan, and Peru.[36] After four years spent mostly in Washington, DC, as an interpreter, Cai returned to China in 1881, and joined Zhang Zhidong's staff in 1884 to manage the daily affairs of the Guangzhou Foreign Affairs Bureau.

Cai's curriculum vitae was representative of a new stratum of bureaucrats and diplomats bred by the Self-Strengthening Movement under the Tongzhi Emperor, also known as the Tongzhi

[36] Ya Weitang, Zheng Wang, and Zhengxiu Ju (eds.), *Zhongguo suji bainian shi [A hundred years of Chinese stenography]* (Beijing: Xueyuan chubanshe, 2000), 17-23; Xiyong Cai, *Chuanyin kuaizi [Transmission of Sounds and Rapid Writing]* (Hubei: Guanshu ju, 1905), 1.

Restoration (1861-1895). After the devastating impact of the Opium Wars (1839-1842) and the Taiping Rebellion (1853-1861), industrialization and technology transfer from the West defined these decades, which altered the cultural, military, scientific, and technological makeup of the empire, at least in the coastal regions. In 1861, Prince Gong established Zongli Yamen, the first office of foreign affairs, and quickly formed Language Schools (*tongwen guan*) to train officials with knowledge of Western languages, first in Beijing in 1862, and then in other port cities. Cai Xiyong was one of the first students of the Canton Language School before he made it to Beijing. In 1864, Li Hongzhang, a general who rose to prominence in the following decades, established a gun factory in Suzhou. In 1865, Li and Zeng Guofan established the Jiangnan Arsenal to manufacture naval vessels and weaponry. A year later, Zuo Zongtang built the Fuzhou Shipyard. Construction of railways, textile industries, cotton mills, coal mining, and advancements in ironworks marked the next decades in the Qing Empire. By the 1890s, Qing military technologies, warship construction in particular, were indeed more advanced than the Japanese, despite the latter's victory in the Sino-Japanese War in 1895.[37] Self-Strengthening Movement succeeded in precipitating a new human-machine complex in the Qing.

As the empire was industrially and technologically transforming, it was also entering a new world of international diplomacy. Cai was again one of the early diplomats who spent considerable time in the US, and an eyewitness to Western industrial development, and to the bureaucratic and legal mechanisms that came with it. After he returned to China in 1881, Cai put

[37] In contrast to earlier scholarship that identified the Self-Strengthening Movement as a failed Confucian restoration, later scholarship has been more alert to the technological advancements during this period. Mary Clabaugh Wright, *The Last Stand of Chinese Conservatism: The T'ung-Chih Restoration, 1862-1874* (Stanford: Stanford University Press, 1957); Albert Feuerwerker, *China's Early Industrialization: Sheng Hsuan-Huai (1844-1916) and Mandarin Enterprise* (Cambridge: Harvard University Press, 1958); Albert Feuerwerker, *The Chinese Economy, 1870-1949* (Ann Arbor: Center For Chinese Studies, the University of Michigan, 1995); Meng Yue, "Hybrid Science versus Modernity: The Practice of the Jiangnan Arsenal, 1864-1897," *EASTM* 16 (1999), 13-52; Benjamin Elman, *On Their Own Terms: Science in China, 1550-1900* (Cambridge: Harvard University Press, 2005), 355-395.

his knowledge and observation into practice under the tutelage of Zhang Zhidong (1837-1909), the governor-general of Guangdong and Guangxi, and a leading figure of the Self-Strengthening Movement.[38]

Zhang Zhidong hired Cai to be the manager of daily affairs at the Guangzhou Foreign Affairs Bureau, but as an extension of his duties, Cai became the head manager of industries and Zhang's chief accountant. Cai was mindful of the elaborate administrative and bureaucratic mechanisms that the expanding industrial base required —not only in terms of workers, office clerks, and bureaucrats, but also new techniques for recording, collecting, and organizing information. He was involved in the management of all foreign enterprises in the province, such as the Guangdong Torpedo Bureau (*yulei ju*) and the Guangdong Mint (*yinyuan ju*). In December 1889, when Zhang was appointed as governor-general of Hunan and Hubei, Cai followed him to Wuchang, where he assumed the role of manager of official documentation. A few months later, Zhang Zhidong established the Bureau of Ironworks (*tiewu ju*), the office that oversaw the construction of the Beijing-Wuhan railroad, and he entrusted Cai with the task of managing the official affairs of the Bureau. Cai surveyed the land, recruited workers and craftsmen, repaired roads, constructed kilns, oversaw the transportation of coal, purchased new machines, and supervised the establishment of the Hanyang Iron and Steel Factory, which started operation in June 1894. Meanwhile, in 1893, Zhang established the Hall of Learning for Self-Strengthening (*ziqiang xuetang*), and appointed Cai as the manager of the school.[39]

[38] William Ayers, *Chang Chih-tung and Educational Reform in China* (Cambridge: Harvard University Press, 1971), 100-136.

[39] Zhang Yonggang and Fan Xiaodong, "Cai Xiyong - Zhang Zhidong mufu qianqi shiye zongguan [Cai Xiyong - The Industrial Administrator of Zhang Zhidong's Administrative Government in its Early Stages]," *Journal of Hebei University (Philosophy and Social Science)*, vol. 31 no. 6 (2006), 115.

Cai Xiyong experienced firsthand the centrality of paperwork in managing humans and machines in rapidly developing industries. His experience abroad and in Zhang Zhidong's industries bore fruit as he penned the first Chinese guide to European-style double-entry bookkeeping, *A Series of Financial Registers* (*lianhuan zhangpu* 連環帳譜), published posthumously in 1905 by his son Cai Zhang.[40] Apart from his concerns for the state of accounting in China, he was also the first to invent a Chinese shorthand. Shorthand or stenography, the recording of linguistic data at the speed of speech, was indeed a form of linguistic bookkeeping; and just like his introduction of double-entry bookkeeping to facilitate the management of financial information, he devised the Chinese shorthand to increase efficiency in the management of linguistic information in government affairs, court disputes, political debates, or anywhere the recording of speech was deemed important.[41]

Transmission of Sounds and Rapid Writing (chuanyin kuaizi 傳音快字) was Cai's landmark publication in 1896. Chinese characters, claimed Cai, consumed too much time to learn, and were not suitable to the contemporary needs of information recording. Spending ten years to become literate was a bad investment for all parties concerned. The students spent too much energy to undertake even basic scribal practices, and the government and industries lacked a sufficient number of literate workers who could organize data. If each sound that the mouth produced was given a separate sign, wrote Cai, the government could solve the problem of illiteracy in a matter of months. Using his shorthand signs, one could record more than two

[40] Cai Xiyong's book was published posthumously by his son Cai Zhang. Cai's double-entry bookkeeping did not make the impact that his shorthand made. Ya Weitang et al., ibid., 19. For a history of accounting in China, see: Robert Gardella, "Squaring Accounts: Commercial Bookkeeping Methods and Capitalist Rationalism in Late Qing and Republican China," *The Journal of Asian Studies*, vol. 51, no. 2 (1992), 317-339.

[41] In the introduction to his *Chuanyin kuaizi*, Cai mentions that he inquired into the workings of government affairs and court disputes in the United States. Xiyong Cai, ibid.

hundred words per minute. Although he may have been exaggerating the efficiency of his own transcription system, speed in learning and writing was for Cai the key to economy in labor. As he noted, with the aid of shorthand, one person could accomplish the work of many, and several days' worth of labor could be reduced to one.[42]

Cai's shorthand was composed of fifty-six signs in total, twenty-four initials (*shengmu* 聲母) and thirty-two finals (*yunmu* 韻母), the combination of which, he claimed, represented all the sounds in Beijing Mandarin, the official language (*guanhua*). In inventing the signs, his model was David Philip Lindsley (1834-1897), who amended the widely used shortand of Isaac Pitman (1813-1897) in the US and claimed to have invented the remedy for fatigue in.[43] In Lindsley's shorthand, there were twenty-four signs that represented consonantal sounds, which provided the blueprint for Cai's initials (*sheng*). As for finals (*yun*), Cai expanded on Lindsley's vocal sounds, which originally numbered seventeen.[44] Every Chinese character, therefore, was represented by the combination of two signs, and four tones were designated by diacritic marks on the right or left side of a sign. (Fig. 1.1)

Cai died two years after he published his work, but his son Cai Zhang 蔡璋 (1872-1958), who also studied the Japanese stenographer Kumasaki Kenichirō's 熊崎健一郎 shorthand,

[42] Xiyong Cai, ibid., 2.

[43] David Philip Lindsley, *The Compendium of Tachygraphy: Or Lindsley's Phonetic Shorthand* (Boston: Otis Clapp, 1864), 3. The edition that Cai used was published in 1882. See, David P. Lindsley, *The Hand Book of Takigrafy* (New York City: D. P. Lindsley, 1882), mentioned in Xiyong Cai and Zhang Cai, *Zhongguo suji xue [Chinese Shorthand]* ([Beijing] suji chuanxi suo, 1913), [no page number].

[44] David. P. Lindsley, *The Compendium*, 10. In the 1882 edition, the number of consonants were twenty-eight. See, David P. Lindsley, *The Hand Book of Takigrafy*, 15.

carried on his legacy.[45] In 1910, the first school for training stenographers was founded under the Political Advisory Board (*zizheng yuan*). The following year, at the request of the director and vice director of the Board, Shi Xu 世續 and Li Jiaju 李家駒, it expanded to include more students.[46] Cai Zhang took the lead in advancing and promoting his father's work, which formed the basis of the textbook, and in a couple of years, three hundred students graduated from the school, some working at the newly formed National Council and some traveling to other provinces.[47]

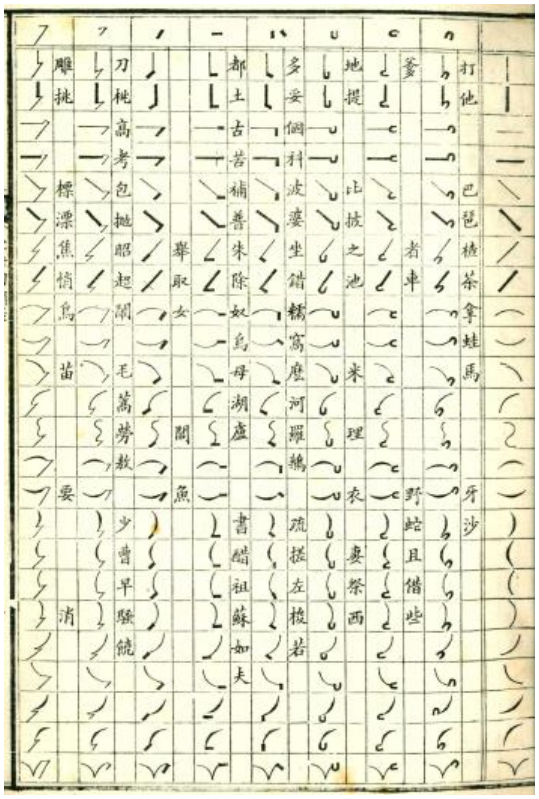

Fig. 1.1 - *Chuanyin kuaizi*. The first column on the right represents the twenty-four *sheng*, and the first row on top eight of thirty-two *yun*.

[45] Xiyong Cai and Zhang Cai, ibid. Kumasaki published *Shinago sokki jutsu (The Art of Chinese Short Hand)* in 1908, and he was therefore invited to Beijing in 1909 to teach shorthand, but he resigned shortly after. Weitang Ya et al., ibid., 29.

[46] First Historical Archives of China. Archive No: 03-7574-026. 3rd year, 5th month, 20th day of Xuantong Emperor (1911).

[47] Xiyong Cai and Zhang Cai, ibid. Cai Zhang also received a medal of fourth degree from Yuan Shikai for his contribution.

Signs that corresponded to spoken sounds could reduce the necessary labor time for literacy from several years to a few weeks, and give rapid rise to a clerical labor force needed in government offices and industries. Literacy, according to the two Cai's, amounted to nothing more than work. In the words of Cai Xiyong, "the brush [could] follow the statements of the mouth without any time to think, and the hand [would] not stop moving" while writing in shorthand.[48] Shorthand, in other words, took the mind out of writing, as the stenographer became a mechanical recorder of speech, a court worker. There was no qualitative side to literacy; it was a technical achievement to satisfy the demands of a new economy. The two Cai's shorthand stood at the intersection of the bureaucratic machinery of the state and the mindless recording of the modern clerk.

Cai Xiyong's shorthand had a huge impact on the history of writing in late Qing. In Fujian, Li Jiesan immediately published his own proposal for a shorthand the same year, and adapted Cai's signs to the Min vernaculars in Fujian.[49] Wang Bingyao's use of the Pitman shorthand to transcribe Beijing Mandarin and Cantonese was also very similar to Cai's work, even though Wang did not make any reference to him. What made Cai's scheme immortal, however, was his son Cai Zhang's textbook.

Cai Zhang had improved the shorthand after his father's inaugural work. He reduced the number of initials to twenty-two, and modified the script so that it could accommodate multi-character phrases and words, rather than just recording one character or one syllable each time. His textbook was geared towards transcribing the keywords that constituted the modern state's

[48] Xiyong Cai, ibid., 1. 筆隨口述，不假思索，手不停揮

[49] Jiesan Li, *Minqiang kuaizi* [*Rapid Writing for Min Speech*] (Beijing: Wenzi gaige chubanshe, 1956 [1896]).

lexicon. After teaching the basic principles of the Chinese shorthand, Cai's textbook introduced the shorthand signs for countries (China, France, America, Australia, Portugal, etc.), and made a smooth transition to more specifically bureaucratic terminology, such as parliament (*guohui*), state system (*guoti*), or state affairs (*guowu*/*guoshi*). After a swift glance at the provinces of China, including specific administrative terminology such as Muslim Regions (*huibu*) or Special Regions (*tebie quyu*), Cai introduced the shorthand signs for governmental offices (Cabinet, State Council, Ministry of Internal Affairs, etc.), and administrative titles (President, Vice President, Secretary, Member of State Council, etc.). He then divided the rest of the lessons into nouns (*mingci*), adjectives (*xingrongci*), and idioms (*xiyongyu*). Nouns included terms such as agreement (*yuefa*), topic of debate (*yiti*), strategy (*shouduan*), policy (*zhengce*), constitution (*xianfa*), regulation (*guize*), bank (*yinhang*), and political view (*zhengjian*). Adjectives included commonly used terms such as special (*tebie*), direct (*zhijie*), easy (*jiandan*), absolutely (*juedui*), cited (*liejude*), specific (*jutide*), or prerequisite (*qianti*). And lastly, idioms included "administrative guidelines" (*xingzheng fangzhen*), "for the benefit of the state and fortune of the people" (*guoli minfu*), "definitely disagree" (*juedui bu zancheng*), and so on. Cai ended the textbook with long excerpts on legal terms as exercises for the students.[50]

The two Cai's shorthand blurred the line between governmental clerks and literate citizens. Although the difficulty of learning thousands of Chinese characters was part of the rhetoric mobilized to promote phonetic signs, the purely bureaucratic use of the latter suggested the invention of a new *homo scribens* who solely worked to sustain the growing archive of modern bureaucracy. In the following years, a staunch advocate of script reform, Wu Rulun, noted the

[50] Xiyong Cai and Zhang Cai, ibid.

significance of literacy to supply the much-needed clerical labor force for industrial enterprises.[51] Literacy, in short, was meant to invent literate clerks in the shortest time possible.

II. Wang Bingyao: Telegraphic Literacy and Economy of Signs

The same year that Cai penned his influential proposal, Wang Bingyao, a Cantonese pastor in the London Missionary Society, also printed a proposal for phoneticization. Efficiency and speed were again the pillars of Wang's phonetic script, but his reasons complemented Cai in a different way. Wang was the first script reformer in China to ponder the impact of telegraphic communication and the Morse Code in particular. Dots and dashes that flowed through electrified wires compelled Wang to re-imagine a radical future for the Chinese script.

Wang's proposal was well-timed. Apart from an industrializing economy, the late-nineteenth century witnessed the expansion of the Chinese telegraphic network, which exacerbated the pressure on the technological use of Chinese characters. Danish and British telegraph companies were the first to wire Shanghai and Hong Kong in 1871, and the web of communication swathed the empire in the following decades. As Thomas Mullaney suggested, the materiality of information was an arena of conflict in an internationalizing economy of telegraphy based on the Morse Code, a system of notation that abstracted the Roman alphabet of the English language into dots and dashes.[52] When telegraphy slowly filtered into China, the Chinese writing system posed a grave physical challenge: how could logographic Chinese characters circulate through electrified wires engineered for the alphabet?

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[51] Rulun Wu, *Qingmo wenzi gaige wenji [A Collection of Late-Qing Script Reforms]* (Beijing: Wenzi gaige chubanshe, 1958), 29-30.

[52] Mullaney, ibid., 153-183.

The incongruence of electrical communication and Chinese characters was first addressed in 1851 by Daniel Jerome Macgowan (1815-1893). An American medical missionary and a translator of Western science into Chinese, Macgowan's *Philosophical Almanac (bowu tongshu)*, published in Ningbo, was the first work that theoretically introduced telegraphy into China.[53] *Philosophical Almanac* crystallized Macgowan's effort to explain the significance of electromagnetic telegraphy and the concomitant electro-physiological conception of the human body. The neologism he introduced, *dianqi* 電氣, captured the semiotic transformation of nature and the human body—he combined *dian* (lightning) and *qi* (cosmic force flowing through nature and human bodies) to signify electricity, the unobstructed force that flowed through telegraphic wires and human bodies.[54] His "electric telegraph," however, was not based on the Morse Code, and was thus significantly different from the 1871 Telegraph Codebook, which became the dominant mode of telegraphic communication until the computer age in China.

Philosophical Almanac's chief aim was no doubt to introduce telegraphy to China, and in doing so it translated a variety of scientific ideas and instruments that were connected to electricity. As Macgowan put it, "the main design of this brochure being to communicate to the Chinese the principles of the ELECTRIC TELEGRAPH, it was necessary for its elucidation, that some account should be given of the sciences connected therewith; … they are perfectly ignorant of Electricity, Galvanism, and Magnetism."[55]

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[53] David Wright, *Translating Science: The Transmission of Western Chemistry into Late Imperial China, 1840-1900* (Leiden; Boston: Brill, 2000), 86-87.

[54] Daniel Jerome Macgowan, *Bowu tongshu [Philosophical Almanac]* (Ningbo, 1851), 1. In this early stage, missionaries consciously appropriated western medical terminology into Chinese in order to conform with local practices and facilitate the diffusion of western scientific knowledge. See, Bridie Andrews, "Tuberculosis and the Assimilation of Germ Theory in China, 1895-1937," *Journal of the History of Medicine,* vol. 52 (1997), 123.

[55] Macgowan, ibid., [no page number]

His colonial pedagogy notwithstanding, Macgowan had the more immediate task of re-engineering Chinese characters. "[P]hilological difficulties surrounding the subject," he noted, "have led many into the erroneous belief that this nation can be instructed in the sciences generally, only through the medium of an Alphabetic Language." Macgowan was utterly against the alphabetization of Chinese language, which had been an ongoing missionary effort for a few decades.[56] Instead he wanted to assimilate the Chinese writing system itself into the telegraphic domain by breaking up the characters into their basic components. Working together with "intelligent natives," whose names he failed to mention, Macgowan invented a new telegraphic dial plate that could, he believed, be used to form all fifty thousand characters in Chinese with only sixteen Chinese symbols. But due to technical difficulties, he suggested that "it might prove more convenient in practice to employ the Manchu alphabet."[57] (Fig. 1.2)

[56] See, chapter 2.

[57] Macgowan, ibid.

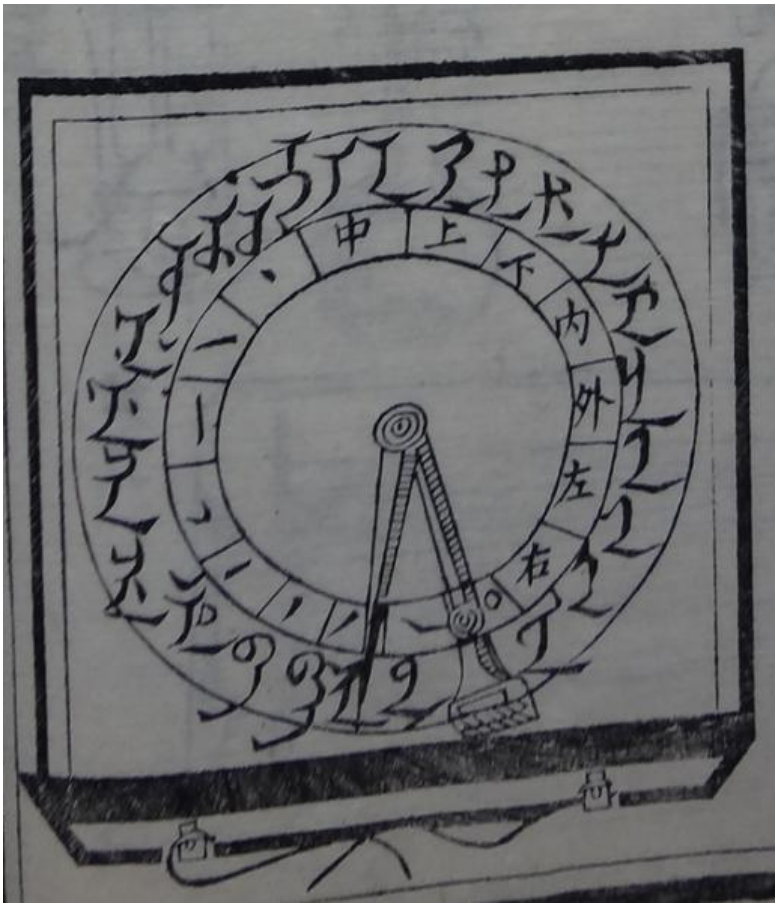

Fig. 1.2 - Chinese and Manchu Telegraphy from *Philosophical Almanac*

Macgowan's Manchu/Chinese "electrical communication of signs," i.e., telegraphy, (*dianqi tongbiao* 電氣通標) was the first interface between the Chinese writing system and the alphabetically structured technology of the telegraph. His apparatus, although never put in operation, was surprising on many accounts. First of all, Macgowan and his Chinese collaborators thought it possible to use Manchu, the official language of the Qing dynasty that few in the empire actually spoke, to transmit telegraphic messages. To my knowledge, this was the first and last mention of Manchu informatics by the missionaries. Secondly, instead of the telegraph key widely used in tapping the Morse code, they modeled their system on a dial pad similar to William Cooke and Charles Wheatstone's telegraphic dial pad which had pointing

needles that rotated above alphabetical letter —a machine that was invented in the 1830s, but enjoyed limited popularity.[58] Thirdly, for the first time, Macgowan and his Chinese collaborators devised a method to index Chinese characters for electromagnetic communication. It was based on "eight strokes" and "seven place-signs." The eight common strokes were taken from the eight-stroke method that pre-dated the Tang dynasty, known as "eight principles of *yong*" (*yongzi ba fa*), which held that the eight strokes that formed the character *yong* 永 were common to all Chinese characters. Macgowan et alia assumed the permutations and combinations of these eight strokes to be capable of creating any Chinese character. (Fig. 1.3) The seven place-signs, on the other hand, indicated the place of the stroke: middle, up, down, inside, outside, left, and right. For instance, if the needle ticked once towards East, it indicated "up"; if it ticked once towards West, it meant "down"; two ticks East was "left," and so on. The strokes worked in the same logic. Two ticks towards East and one towards West meant 丶, two East and two West was 丨, and so on.[59]

[58] Russel W. Burns, *Communications: An International History of the Formative Years* (IET, 2004); Ken Beauchamp,, *History of Telegraphy* (IET, 2001); Brian Bowers, *Sir Charles Wheatstone: 1802–1875* (IET, 2001).

[59] Macgowan, ibid., 22-23. The first Chinese-language newspaper that brought in news about European telegraphy was "Chinese Serial" (*xiaer guanzhen* 遐爾貫珍). See, Bin Shi, *Dianbao tongxin yu qingmo minchu de zhengzhi bianju [Telegraphic Communication and Late-Qing and Early-Republican Political Change]* (Beijing: Zhongguo shehui kexue chubanshe, 2012), 41.

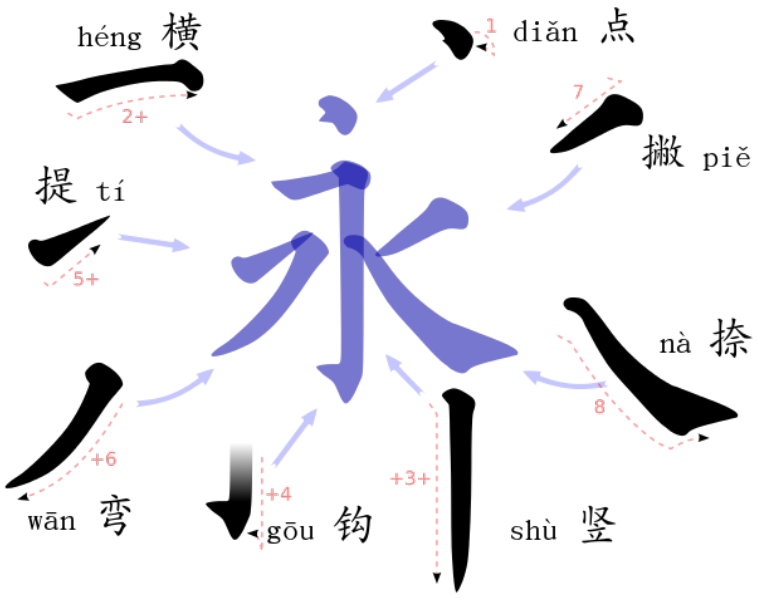

Fig. 1.3 - "Eight Principles of *yong* 永," Taken from *Wikipedia*

Needless to say, Macgowan was too optimistic about the composition of Chinese characters. The order of strokes in Chinese characters was not as straightforward as in *yong* 永, so his method turned out to be impractical. But the significance of Macgowan's project lay in his effort to incorporate the Chinese writing system into a global economy of communication dictated by the telegraphic medium. Equally important was his importation of Galvanistic theory into China to suggest that electricity was the building block of human physiology, a position that was embraced in unexpected ways by later reformers of the Chinese script. But let us take the story one step at a time.

The first commercial Chinese telegraph codebook modeled on the Morse Code was invented by H. C. F. C. Schjellerup, a Danish astronomy professor, in 1871, and was expanded and put in wider use by the French harbormaster in Shanghai, Auguste Septime Viguier. The 1871 telegraph codebook was the blueprint of almost all the telegraph codebooks that were used in China until the advent of the digital age, but it did not come without technical and financial difficulties.

Samuel F. B. Morse's telegraph code was based on the English alphabet, in which every letter was represented by dots and dashes. The letter "a," for instance, was a dot and a dash (. -), "b," a dot and three dashes (. - - -), "c," a dash, a dot, a dash, a dot (- . - .), and so on. But the non-alphabetical nature of the Chinese script, which had troubled Daniel Macgowan, demanded a middle stage between the Morse Code and the Chinese characters, which came in the form of numbers. Viguier assigned a four-digit number to each character, so that each character's number-code could be transmitted via the Morse Code. To transmit the character *yi* 一, its number "0001" was used; or the character *ya* 亞 was now identified with the number "0077." (Fig. 1.4) The numbers thus ran from 0001 to 9999, enough to contain 6000 to 7000 commonly-used Chinese characters.[60]

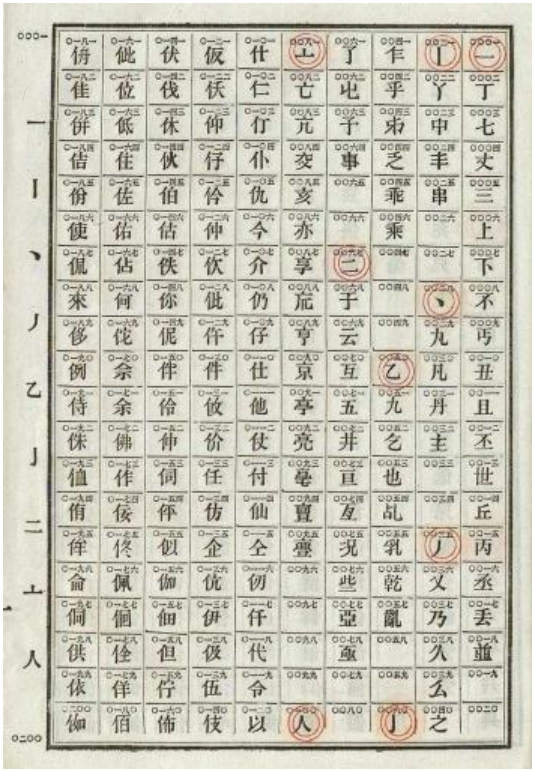

Fig. 1.4 - Viguier's *Dianbao xinshu* 電報新書, 1872.

[60] Erik Baark, *Lightning Wires: The Telegraph and China's Technological Modernization* (Westport, Connecticut: Greenwood Press, 1997), 84; Mullaney, ibid., 161.

But this coding system caused two major problems for the late-Qing reformers. First, on the side of the telegraph clerk, it consumed too much labor time to transmit a given character. The codebook was designed and indexed according to the principles of the Kangxi Dictionary's method of indexing, based on 214 root-radicals (*bushou* 部首). 214 root-radicals were originally invented by the late-Ming literatus Mei Yingzuo, but they became the sovereign method of indexing Chinese characters under the Kangxi emperor (r. 1661-1722), whose encyclopedic dictionary, the Kangxi Dictionary (*kangxi zidian*), was indexed using this system in 1716. According to the index of 214 radicals, each character contained a radical. The radical for lightning/electricity, *dian* 電, for instance, was *yu* 雨 (which originally meant "rain"). In order to locate *dian* in the dictionary, the dictionary-user first had to find the category for *yu* 雨, under which were listed all the characters that had *yu* as their radical, such as snow (*xue* 雪), cloud (*yun* 雲), dew (*fen* 雰), and *dian* 電. The 1871 Telegraph Codebook was therefore like a dictionary without meanings, but with the added complexity of four-digit numbers. A telegraph clerk who wanted to locate a given character first had to determine the root-radical of the character, then find the root-radical in the codebook, then find the character designated under that root-radical, and finally translate the four-digit number of that character into the Morse Code. The four-digit number for *dian*, for instance, was 6262. Our hypothetical clerk was ready to wire it away.[61]

Secondly, the transmission of telegrams in the form of four-digit numbers was too costly. Telegrams were charged according to the number of dots and dashes they involved, and the

[61] I have taken the example from S. A. Viguier (Waijiye), *Dianbao xinshu.* The telegraph codebooks underwent serious changes in the following decades, including changes in 214 radicals. So numbers in Viguier's codebook do not correspond to later codebooks, although the principles are the same. *Lai* 來, for instance, was designated under the radical *ren* 人 in the Kangxi dictionary and Viguier's codebook, because the old character for *lai* was 徠. In later dictionaries and codebooks, however, the radical was changed to *mu* 木.

Morse code for numbers were the longest of all signs. Let us continue with the example of *dian*, i.e., 6262. If *dian* was hypothetically coded in phoneticized letters, it would be equal to four letters in the Morse Code: *d* -.. *i*.. *a*.- *n*-. Six dots and three dashes. With the dominant four-digit number formula, however, the same character was translated as twelve dots and eight dashes: 6-…. 2..--- 6-…. 2..--- Chinese characters, in other words, had an economically disadvantaged status when compared to working with an alphabet-oriented information infrastructure.[62] Economy in telegraphic communication —both in labor-time and in the cost of transmission— acted as the grounds on which late-Qing intellectuals advocated the phoneticization of the Chinese writing system.

Wang Bingyao was the first script reformer in the Qing dynasty who identified telegraphy as the primary reason for the need to phoneticize the Chinese writing system. Wang was a pastor in the London Missionary Society, and it is noteworthy that although he was very well-informed about the Roman alphabet for Cantonese used by missionaries since the early nineteenth century, he decided to invent a shorthand rather than follow the Roman alphabet, the reasons of which will become clear in the next chapter.[63] In *A Record of Phonetic Letters (pinyin zipu* 拼音字譜), Wang addressed the problem of codebooks, and claimed that his phonetic script could solve the problem of time- and money-loss in telegraphic communication, while helping in the creation of a literate society.[64] (Fig. 1.5) Wang was writing for a Cantonese population, and his proposal

[62] For a more detailed explanation of the economy of signs in Morse Code, and the methods Chinese technician invented for the sake of a more economic interface between alphabetical letters and Chinese characters, see, Mullaney, ibid., 161-165.

[63] Timothy Richard, "Non-Phonetic and Phonetic Systems of Writing Chinese," Chinese Recorder, vol. 29 (Nov. 1898), 542.

[64] Bingyao Wang, *Pinyin zipu [A Record of Phonetic Letters]* (Beijing: Wenzi gaige chubanshe, 1956 [1896]), 11-12.電報學堂創用號碼，某碼某字，來報之字，數百個檢查之煩，亦數百次列明號碼，方能發電接報者，亦須接碼檢查，方能抄譯兩處輾轉查閱，然後完一報。

concerned the Cantonese language, spoken in the southern Chinese province of Guangdong. It was composed of 75 signs —22 initials and 53 finals— which was "not difficult to study even for the dumbest person."[65] Although Wang devised his system for Cantonese, he added extra signs to represent Beijing Mandarin and Amoy vernacular speech as well —a strong indication that he was aware of Cai Xiyong and Lu Zhuangzhang's script proposals that were based on Beijing Mandarin and Amoy respectively. He was indeed in favor of the unification of all languages under Beijing Mandarin. But speakers of different languages needed a method to learn the official language, he noted, which is where his invention entered the picture, with its potential to reduce years of strenuous labor to a few days, and create a nation (*guo*) of knowledge and intellect.[66]

In Wang's conceptual framework, literacy and telegraphy were both governed by the same laws of economy: neither the time needed to learn Chinese characters, nor that needed to transmit them conformed with the accelerating speed of information. The telegraph collapsed time and space through electrical wires, but in order to encode language in dots and dashes and be telegraphically literate, the minds of the Chinese population needed to abide by the laws of wired communication. The financial and military strength of the West, argued Wang, emerged out of its alphabetical letters, out of "facilitating the path of the written word into the mind (*yi qi lu ru xin* 易其路入心)."[67] "If we want to raise China," Wang wrote, "and especially seek [to have] railroads, machinery, artistry, mining, commerce, banking, postal service, military equipment, and naval ships like in Europe and America, we cannot follow a false path (*buwu qu wei zhi dao*

[65] Bingyao Wang, "Xu [Preface]," ibid., 1 (unidentified page number). 粵音韻母字五十三，聲母字二十二，共七十五字，至愚之人亦不難學也。

[66] ibid., 2 (unidentified page number)

[67] ibid., 5.

不務去偽之道)."[68] The foundation of progress was the "people's intellect (*minzhi* 民智)," and the technique to *intellectify* the people (*zhimin zhi shu* 智民之述) was none other than a phonetic script that cleared away the obstacles on the path of information into the mind. When taken together, Cai and Wang's script proposals indicated scarcity and inefficiency in clerical and mental labor. The task at hand was to invent a writing system that could reskill the population and produce efficient workers who optimized the use of their mental labor in becoming a literally productive member of the society.

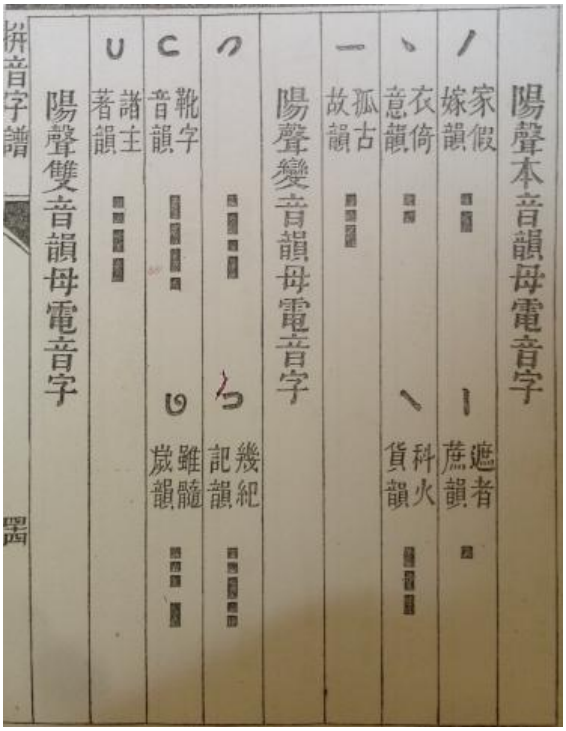

Fig. 1.5 - Wang Bingyao's *Phonetic Letters* and the Morse Code

Wang's issue with the telegraph was raised over and over again by other late-Qing, Republican, and even PRC intellectuals and technicians. The invention of the Chinese National Phonetic Alphabet (*zhuyin zimu*) in 1913 and its promulgation in 1918 was both an effort to

[68] ibid., 12.

reduce the labor-time necessary for engineering national citizens capable of activities that required basic literacy, and an effort to re-engineer telegraphic communication. The National Phonetic Alphabet, also known as *bopomofo*, which is still the main input method used in Taiwanese computing technologies, was experimentally employed in telegraphic communication by the Chinese Nationalist Party (KMT) from 1929 to 1937 in Liaoning Province.[69] In the 1950s, the engineers of the People's Republic of China were as invested in mass literacy as in Latinizing telegraphic communication. Most tellingly, Zhou Youguang (1906-2017), the inventor of *pinyin*, the PRC's Latin transcription system, heavily invested in it partially as an extension of his work on telegraphic reform.[70]

Apart from the infrastructural difficulties it imposed on the Chinese writing system, telegraphy also played a significant role in theorizing the body as a repository of information, with the brain as its center. Galvanistic theories that entered the Chinese literary markets via missionary translations introduced analogies that likened telegraphy to the nervous system, which offered late-Qing scholars scientific venues for concocting new philosophical and political theories that brought together humans and information technologies.

III. Brain, Script, and Mental Labor

When Shen Xue penned the first Chinese treatise on script and brain, he was drawing on a growing corpus of translated science, which started with Daniel Macgowan's conceptual introduction of the electric telegraph with *Philosophical Almanac* in 1851. As noted, Macgowan and his Chinese associates were the inventors of the term for electricity (*dianqi*), the unseen

[69] See chapter 2 for a history of the National Phonetic Alphabet.

[70] Youguang Zhou, *Dianbao pinyinhua [Pinyin-ization of the Telegraph]* (Beijing: Wenzi gaige chubanshe, 1965).

power that flowed through telegraphic wires and human bodies. As such, *Philosophical Almanac* was the first text in Chinese that proposed Galvanist principles for the functioning of the human body. Electricity was key to understanding both human life and the mechanical transmission of human language.[71]

The same year witnessed the publication of another missionary work that enjoyed wider circulation. Benjamin Hobson and Chen Xiutang published *A New Treatise on Anatomy* (*quanti xinlun* 全體新論) in Canton in 1851. Hobson was the first Protestant missionary-physician dispatched by the London Missionary Society first to Macao in 1839 and then to Canton in 1848, where he collaborated with Chen Xiutang to write *A New Treatise*. Different from *Philosophical Almanac*, Hobson and Chen's work was involved in introducing the conceptual and lexical vocabulary necessary to introduce the brain as the seat of the mind and soul and the governor of the body. Defying the traditional Chinese medical and cosmic theories of the mind's place in the body, they started *A New Treatise* with the following remark:

> The ancients said that … everything comes from the heart. In fact, they did not know that the soul resides in the brain. They also said that the brain was the governing seat of the primordial spirit (*yuanshen zhi fu* 元神之府), [but] they did not know the function of the brain. ... The brain is the highest sovereign (*zhu* 主) of the body.[72]

An encephalocentric conceptualization of the body infiltrated into the Chinese minds through governmental metaphors ("governing seat," "sovereign") and neologisms for anatomical parts that did not exist previously in the Chinese vocabulary. The most critical term for

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[71] Interestingly enough, Macgowan did not make note of the brain in his translation of Galvanism. On the history of Galvanism, electricity, and communication in Europe, see Laura Otis, *Networking: Communicating with Bodies and Machines in the Nineteenth Century* (Ann Arbor: The University of Michigan Press, 2011).

[72] Benjamin Hobson (and Chen Xiutang), *Quanti xinlun [A New Treatise on Anatomy]* (Beijing: Zhonghua shuju, 1991), 75-76. One exception to Chinese medical tradition that did not centralize the brain was Wang Qingren who wrote *Correcting the Errors in the Forest of Medicine* (*yilin gaicuo* 醫林改錯) in 1832, and quoting from late Ming and Early Qing scholars, who were exposed to Jesuit translations, argued that the brain was the center of the body. See, Bridie Andrews, "An Introduction to the Yilin Gaicuo" in Wang Qingren, *Correcting the Errors in the Forest of Medicine,* trans. Yuhsing Chung, Herman Oving, and Simon Becker (Boulder: Blue Poppy Press, 2007), vi.

propagating a cerebral sovereignty was the media that connected the brain to the outside world, i.e., nerves, or as Hobson and Chen translated, "brain-*qi* tendons" (*naoqijin* 腦氣筋): "Divided into branches like ropes, like strings, like threads, they are in general called the brain-*qi* tendons."[73] Bridie Andrews has noted that the use of *qi* in translating "nerve" was in part an effort to introduce Galvanist theories of electricity and the body into China, since in Chinese anatomical vision, every organ had its own *qi*, and they were all affected by the movement of "normal *qi*" in the body.[74] In translated anatomy, brain-*qi* tendons connected the self to the outer world.

The following decades advanced the anatomical knowledge of the brain in China, translating ideas that had emerged in Western medical writings of the previous several decades. Encyclopedic studies, such as Dauphin William Osgood's *A Profound Explanation of Anatomy* (*quanti chanwei* 全體闡微), and John Dudgeon's *A Complete Investigation of Anatomy* (*quanti tongkao* 全體通考) in 1886 were both translations of Henry Gray's *Anatomy, Descriptive and Surgical*, originally published in 1858. Osgood's translation was published in Fuzhou in 1881, one year after his death, and circulated in Guangdong, Fujian, and Shanghai. Dudgeon's translation, on the other hand, was printed by the Beijing Tongwenguan Press in 1886, and was sold in the environs of the capital.[75] Besides the surgical knowledge they sought to disseminate, these encyclopaedic works were significant attempts to unify the terminology relating to brain sciences, and introduce a more sophisticated vocabulary with which to convey anatomical

[73] Hobson, ibid., 77.

[74] Bridie Andrews, "The Making of Modern Chinese Medicine" (PhD Diss,, University of Cambridge, 1996), 31, quoted in Larissa Heinrich, *Afterlife of Images: Translating the Pathological Body Between China and the West* (Durham: Duke University Press, 2008), 123-4.

[75] Shuji Matsumoto 松本秀士，"Shinsue kankō no chūgoku bun jintai kaibō gaku sho [On the Chinese Language Books on Anatomical Dissection Published in Late Qing," *Nihon yisshigaku zasshi*, vol. 53, no. 4 (2007), 548-552.

knowledge. *A Profound Explanation of Anatomy*, for instance, defined brain tendons (*naojin* 腦筋) as "nerves," putting an end to Hobson's interchangeable concepts of brain-*qi* tendons (*naoqijin*), *qi* tendons (*qijin*), and brain tendons (*naojin*).[76]

Apart from the encyclopedic works, missionaries also published smaller textbooks that circulated more easily. In terms of promoting the conceptual and material link between electricity, brain, and telegraphic communication, Henry Dwight Porter's textbook *Elementary Physiology* (*shengshen zhizhang* 省身指掌), also published in 1886, was exceptional. Henry D. Porter arrived from the US in 1872 as part of the ABCFM North China Mission. Stationed mostly in Shandong, especially in Pengjia Village, where he founded a small dispensary, Porter led the life of preacher and medical practitioner until the Boxer Rebellion in 1900. The following year, he returned to the US, and died in California in 1916.[77] His short book on physiology was one of the earliest Chinese textbooks on the subject, published in 1886 in Beijing. According to Porter's remarks in the textbook, brain and cognition worked like a telegraph office. Brain-*qi* (*naoqi*) was the electrified *qi* (*dianqi*, electricity) that enabled the *qi* for cognitive functions (*zhijue zhi qi*). Like the telegraphic cables, the power of *qi* diminished as the distance it traveled increased, and thus were needed electrical batteries (*dianchi*), which in the brain were identified by brain cells (*naozhu* 腦珠).[78] Brain-*qi* originated in the cells, and was carried through cranial nerves (*naoxian*), i.e., brain cables, like electrical cables (*dianxian*), sending and receiving messages: "Ganglions in the brain (*naojie naohe* 腦結腦核) are like telegraph offices

[76] ibid., 549.

[77] "Dr. Porter of Pangchwang," *The Missionary Herald*, vol. 112, no. 12 (Dec., 1916), 542-543.

[78] Henry Porter, *Shengshen zhizhang [Elementary Physiology]* (Beijing: Tongwen Guan Press, 1886), 45. Porter in another place gives the translation of *naozhu* as ganglionic corpuscle, which was thought to be a part of the nerve substance.

(*dianbaoju*) that receive and transmit speech (*yanyu* 言語). All human sensations are transmitted through the ganglions in the brain."[79] In a curious mix, Porter collapsed the transmission of speech with the transmission of sensations, both in the form of information.

Translation was both an act of searching for potential semantic hosts in Chinese to accommodate western concepts, and, as Larissa Heinrich suggested, the practice of inventing an entirely new theoretical foundation for understanding the human body.[80] Regardless of the extent of their circulation in China and their troubled reception during the first decades after publication, Macgowan, Hobson, Osgood, Dudgeon, Porter, and others were the first to establish a new way of knowing the body in China, one in which the circulation of electricity, *qi*, and information was vital for life and consciousness.[81]

By the 1890s, a detailed knowledge about the brain and the nervous system, along with the questions it raised about the seat of consciousness, was available in the Qing capital and coastal cities. The increasing presence of the telegraph cables that surrounded the empire in an astonishing speed, and the economic problems of telecommunication they precipitated, were transformative for late-Qing thought. Instead of reading the missionary writings merely as medical works, late-Qing intellectuals utilized the new theories of the body and technologies of communication to offer solutions to the exacerbating social and political problems in the empire. Informed by these medical theories, Shen Xue was the first to define communication as a neurophysiological act of labor.

[79] ibid.

[80] Heinrich, ibid., 125.

[81] For an early reception of Hobson and Chen's work, see, Benjamin Elman, *On Their Own Terms*, 292-295.

Shen Xue's approach to the Chinese script combined a translated encephalocentric anatomy with Wang Bingyao's telegraphic concerns and Cai Xiyong's penchant for speed and efficiency for bureaucratic recording for industries and government. Shen's radical reassembly of language, writing, and body in China was in part made possible by his native place, Shanghai, which was by the late nineteenth century a center for collecting missionary translations and publications on human anatomy. Shen probably also had access to English publications on topics such as aphasia, which are hard to identify but were most probably stored in missionary collections that Shen made use of during his time as a student of medicine in Shanghai. In addition, Shen was also exposed to Cai Xiyong's shorthand and Lu Zhuangzhang's syllabary along with missionary Romanizations of Shanghainese, of which there were many.[82]

A phonetic script, according to Shen, was central to redefining humans' relationship to language and mental work. He was in full agreement with Cai Xiyong and Wang Bingyao, although he never referenced the latter, on the need for a new script to optimize the use of time in writing and in telegraphic communication. Shen claimed that he himself tested the rate of speed of writing Chinese in different calligraphies and in different phonetic systems, and noted that in the time that it took him to write 180 small seal characters (*xiaozhuan*), he could write 200 in clerical script (*lishu*), 280 in Song font (*songti*), 300 in regular script (*zhengkai*), 360 in cursive (*caoshu*), 400 sounds (*yin*) in English, French, Russian, and German scripts, 320 sounds in Indian script (*yinduwen*), 340 characters in Japanese syllabary, 360 sounds in the Qing script of Manchu, Mongolian, and Tibetan, 380 sounds in Romanized Chinese (possibly, in this case, for Shanghainese), 600 sounds for western shorthand, 600 sounds in his own phonetic script (*yuanyin xinzi* 元音新字), and 1800 sounds in the contracted technique of his own script

[82] Xue Shen, ibid., 19-20.

(*yuanyin suobi* 元音縮筆). In short, the rate of speed (*sulü* 速率) of writing Chinese characters fell far behind that of alphabets.

Chinese characters were also at a disadvantage in telegraphic communication. As I have noted earlier, a Chinese telegraph codebook was composed of a list of Chinese characters that were accompanied by four-digit numbers. Every time a telegraph clerk wanted to transmit a message, he needed to locate the character in the codebook, check its number, translate the number into the Morse Code, and send it. The receiver of the message did the same in the reverse order to decode a message. Four-digit numbers, claimed Shen, diminished speed in communication and increased labor in translating the sounds into numbers and vice versa. With his shorthand composed of eighteen strokes only, he claimed that he could "send any sound in the world without [the added] labor of translation (*ke bao tianxiayin mian fanyi zhi lao* 可報天下音免翻譯之勞)."[83]

The calculations that Shen supposedly made of the rate of writing and transmitting might have been dubious for some of his readers, but his emphasis on speed and labor productivity was rhetorically powerful. What made his treatise even more significant, and compelled Liang Qichao to write a preface for him, was his blend of the urgency for optimizing clerical and telegraphic labor with an urgency for a more efficient use of cognitive power. Writing for Shen was foremost of all a physiological phenomenon. The production of logographic signs were governed by the eye (*xiangxing muzhi* 象形目治), whereas that of phonetic signs were primarily governed by the ear (*erzhi* 耳治). Sounds entered the ear in the form of waves (*tuolang*) and hit the eardrum (*ergu*), which then transmitted the waves to four plates (*pan* 盤) through four small

[83] ibid., 20.

bones (malleus, incus, pearl-bone, and stapes 椎骨砧骨珠骨馬鐙骨); and then the nerves (*naojin*) recognized this as "sound." This anatomical process of sound-recognition was critical for Shen's purposes because a phonetic letter was the quickest representation of sound as it traveled into the brain. In his own words, "when the labor and rest of mental thought [is studied] from an anatomic perspective (*an tiyongxue xinsi zhi laoyi* 按體用學心思之勞逸)," logographs had to be superseded by phonetic letters, because the cerebral synthesis of the latter was seven times faster than the former.

Shen was most likely exposed to English publications that expounded anatomical visions of script and speech in the earlier decades. In fact, Shen had originally written *Primordial Sounds for a Prosperous Era* in English under the title *Universal Script*, the manuscript of which has been lost. The title itself, however, bears significance, for it is surprisingly similar to the missionary search for a "universal alphabet," and Shen might have even derived it from Alexander Melville Bell's *Visible Speech: The Science of Universal Alphabetics*, which I will briefly examine in the next chapter on missionary Romanizations. Despite the similarity, Shen, like many other script reformers of the following decades, subverted the colonial project to assert his own political vision on writing and language. In the aftermath of the humiliation suffered during the Sino-Japanese War, Shen's physiological script promised hope.

According to Shen's calculations, learning a logogram (*xiangxing*) required seven times more response-power (*huifu li* 回覆力) or memory-power (*jicai* 記才) than learning a letter. There were 5,000 frequently used characters in Chinese, but if one wanted to compose in an ornate language, a knowledge of 50,000 characters were necessary, which in Shen's not-so-reliable calculations demanded 700,000 times more memory-power. The exorbitant amount of energy necessary to learn Chinese characters was giving rise to serious neurological problems,

according to Shen. "The brain requires blood," noted Shen, "but if the working mind (*laoxin* 勞心) is overused, blood coagulates inside the brain, and the heat exceeds the normal, causing damage to the brain and blood." Written signs helped "save memory" (*shengji* 省記), a term that later reformers made frequent use of. Even learning 5,000 characters took more than a year for a strong-minded and able-bodied student, and the labor-time for learning could not compete with Western children, who spent several hours to learn the alphabet. Again, according to Shen's calculations, only an eighth of the population was literate in China, and only one percent of the literates was not designated with an illness. The number of people who could study science and economy (*gezhi jingji*) reached seventy million in Britain, a hundred million in America, sixty million in Russia, fifty million in France and Germany. Even in Japan, he speculated, seventy million people were taught to read in the past twenty years. "If China wants to strengthen itself," asserted Shen, "it must start from its script."[84]

The economy of linguistic signs dispelled the extra-blood in the brain, allowing cerebral efficiency. But there was more to the connection between language and brain. Linguistic units, in Shen's analysis, were directly connected to parts of the brain. The argument that the faculty of speech was located in the brain was debated by several European anatomists in the nineteenth century, the most famous of which was the French anatomist and anthropologist Pierre Paul Broca (1824-1880), who in 1861 proposed a particular locale in the brain for the faculty of speech, which later came to be known as "Broca's area." By the time Shen was writing, however, none of these theories were translated into Chinese. The latest translated work on the encephalon was Henry Gray's monumental work, which predated Broca. When Shen argued for the interconnection between speech and brain, then, he might have consulted missionaries or works

[84] ibid., 11-13.

in English, for aphasia occupied an important place in building his theory of writing and the mind. But even so, he was less interested in the minute details of aphasia (which by the 1890s was heavily debated in Europe and the US), and more involved in inventing a hybrid theory of Chinese traditional grammar and translated brain sciences.

The first step in his theory was to find an imagined ground of commensurability between classical Chinese and modern English grammatical terminologies. In his semiotic world of Chinese and English grammar, any speech was composed of "living words (*huozi*)," "empty words (*xuzi*)," and "real words (*shizi*)," which respectively corresponded to "verbs (*fubo* 浮勃)," "adjectives (*ajidihu* 阿及底胡)," and "nouns (*nang* 囊)."[85] Living, empty, and real words mutually constituted each other and were interchangeable. "Smell" (*xiang* 香), for instance, oscillated between living and real words, because "to smell" (living word/verb) was different from "a smell" (real word/noun). "Clothes" (*yi* 衣) could be used as a real word when saying "to take one's clothes off" (*jieyi* 解衣), or as a living word to say "to clothe someone" (*yizhi* 衣之). "People use words interchangeably in this way," wrote Shen, "but they are not aware that psychological transformation (*xingli bianhua* 性理變化) also takes place in the same way."[86]

This "psychological transformation" was none other than what was seen in patients with aphasia (*ren zhi wang* 人之忘), the loss of speech. In aphasia, Shen noted, the first grammatical category lost was real-words/nouns, such as people's names or place names. Then came living-words/verbs, the loss of which made it impossible to remember empty-words/adjectives.[87] Shen's

[85] Shen Xue took out the "dead words (*sizi*)" out of the equation.

[86] Shen, ibid., 14. There were many translations of the terms "psychology" or "psyche" into Chinese in the nineteenth century. See, Shuchang Yan, *Zhongguo jindai xinlixue shi [A History of Psychology in Modern China]* (Shanghai: Shanghai jiaoyu chubanshe, 2015).

[87] ibid.

order of forgetting was slightly different from the general western scientific beliefs about aphasic progression, which held that nouns were to first to be forgotten, but verbs were the hardest to forget. The order of losing nouns, adjectives, and verbs had been a subject of debate since at least the 1850s in Europe, and in 1890, James Ross, a prominent British physician, had fused evolutionary thought and nineteenth-century colonial anthropology to claim that "the language of aboriginal man consisted almost entirely of verbs, demonstrative pronouns, and a few adverbs of time and place, and that the names of even common objects are always derivative," which is why according to Ross, "in the dissolution of language caused by disease, nouns should disappear from the vocabulary of the patient before the parts of speech which have been first developed, and, therefore, most deeply organized."[88] Shen was apparently exposed to some of these ideas, but what they indicated for him was that the three categories were psychologically inseparable, because in Shen's venture into brain sciences, these three grammatical categories were connected to three parts of the brain.

In the science of anatomy, wrote Shen, cerebellum ("small brain," *xiaonao*) controlled movement (*yundong*), cerebrum ("big brain," *danao*) controlled consciousness (*zhijue*), and pons varolii ("middle brain," *zhongnao*) controlled the will (*lizhi*). These three parts of the brain also corresponded to the three psychological faculties: the faculty of sensation and awareness (*juewu cai* 覺悟才), of memory and thought (*jisi cai* 記思才), and of imagination (*xiang cai* 象才). Moreover, Shen's hybrid science of linguistic grammar composed of living-words/verbs, empty-

[88] James Ross, *On Aphasia: Being a Contribution to the Subject of the Dissolution of Speech from Cerebral Disease* (London: J. & A. Churchill, 1887), 112-113. The debates about the order of the loss of nouns, verbs, and adjectives have started in the 1850s the latest. See, Bateman, O*n Aphasia, or loss of speech, and the localization of the faculty of articulate language*, 2nd ed. (London: J. & A. Churchill, 1890), 50. Neuropathology and theories about aphasia have been an important part of nineteenth-century neurological debates, and they were closely connected to colonial anthropology. After all, Broca himself published on anthropology. An overview of theories about aphasia can be found in: Juergen Tesak and Chris Code, *Milestones in the History of Aphasia: Theories and Protagonists* (Hove and New York: Psychology Press, 2008).

words/adjectives, and real-words/nouns also corresponded to the cerebellum, the cerebrum, and the pons varolii. In Shen's architecture of cerebral consciousness, then, the cerebellum managed the faculty of consciousness and awareness, and worked through living-words/verbs and movement; cerebrum managed the faculty of memory and thought, and worked through empty-words/adjectives and consciousness; and pons varolii managed the faculty of imagination, and worked through real-word/nouns and will.

Shen complicated things even further: the Confucian-cum-Buddhist values of "benevolence (*ren* 仁)," "fairness (*yi* 義)," and "faith (*xin* 信)," which filled the universe, also corresponded to the three brain parts, and hence to three grammatical categories respectively.[89] Cerebellum, movement, verbs, and benevolence functioned in unity; so did cerebrum, sensation, adjectives, and fairness; and pons varolii, will, nouns, and faith. Language not only unified the three parts of the brain but also the three principles of the universe. A speaking and functioning brain was the cosmos in a microscale.

Shen endeavored to bring together a Confucian-cum-Buddhist view of existence, the unity of form and emptiness, with that of brain sciences, psychology, and the physicality of senses. "Form is emptiness, and emptiness is form," quoted Shen from the *Heart Sutra*, and continued: "when there is no matter, there is no body; when there is no body, there are no senses; when there are no senses, there is no psyche (*xing* 性). Everything has a sound, a vision, a smell, a taste, and a touch. They can be seen because they have a physical appearance (*xingzhi* 形質)."[90]

There was a greater level of existence, the Great Void (*taixu* 太虛), which neither had a mind nor a law, neither a sound nor a smell; the Great Void was immeasurable. But in the realm

[89] Shen, ibid., 23.

[90] ibid., 22.

of humans, things were measurable, and they were so through the senses which came in forms and material appearances (*sexiang* 色相), which were imprinted in the human consciousness through the senses. But, Shen argued, human bodies were limited, and minds were clunky (*renshen youxian, xinling kuairen* 人身有限，心靈塊然). Only through machines could human consciousness overcome its own limitations. Since consciousness and forms were produced both through the five senses *and* speech that animated the brain, Shen argued that "irrefutably, script [was] the best of all instruments."[91] "A good script," noted Shen, "is one that favors the self by expediting human functioning (*yi ren wei sulü huiwu zishan* 以人為速率惠吾字善)."[92] A phonetic script and the cerebral efficiency it allowed, in short, was the reconciliation of the human and the cosmos, an example of late-Qing singularity between the self and the universe. As Shen put it, "the Self is the Heaven, and the Heaven is the Self."[93] The script and the brain were the physical media that brought the two together.

When read and analyzed thoroughly, anyone who followed his rather convoluted argument could point to some inaccuracies places and raise questions. Did he, for instance, really punch the clock to calculate the amount of time necessary to write in different scripts? Why did he get rid of the traditional Chinese grammatical category of "dead-words (*sizi* 死字)"? Why was the principle of the universe only composed of benevolence, fairness, and faith?

The central problem that Shen addressed, that of the centrality of the brain and the inefficiency of mental labor, seemed to be more important than the internal coherence of his

[91] ibid., 14; 必不弗論，文字者，器具之尤也

[92] ibid., 22.

[93] ibid., 22. 吾即是天，天即是吾

treatise.[94] When Liang Qichao took interest in Shen's piece, Liang was himself interested in the notion of cerebral efficiency for children's education, and Shen's arguments struck the right chord. Either right before or after he penned his preface to Shen's work, Liang published "On Children's Education (*lun youxue* 論幼學)" in 1896. "Every human is born with a cerebrum (*danao* 大腦) and a cerebellum (*xiaonao* 小腦)," said Liang. For Liang, still at the early stages of his engagement with the encephalon, cerebrum governed awareness (*wuxing* 悟性), and cerebellum, memory (*jixing* 記性). The cerebrum, he contended, was easier to mold than the cerebellum, which explained the difficulties that China was facing in its education system. His reasoning was as follows: Chinese education was based on rote memorization, which worked the cerebellum, the part of the brain that was difficult to change. One did not reach the highest points of human achievement through memory, but through "awareness," which encompassed the capacity of innovation through observation. Western countries became "aware" of the steam engine (*qiji* 汽機) through observing boiling water, of gravity through observing the interaction between objects. China's system of education, on the other hand, "relied on memorizing ancient geography, ancient palaces, ancient exegeses, ancient nomenclature, and an extremely detailed textual research on the origins of Chinese characters." This method of instruction caused daily harm to the brain (*nao rishang* 腦日傷). A new system of education based on observation could instead guide the brain (*daonao* 導腦), strengthening it on a daily basis (*nao riqiang* 腦日強). According to Liang, the most convenient time to start guiding a child's brain was when he/she

[94] The historical records suggest that Shen published a second edition with illustrations, *pinyin xinzi* 拼音新字, but a copy has not survived the twentieth century.

was five-six years old, i.e., when the ossification of the sutures in the skull closed the fontanel (*naoxin chuhe* 腦囟初合), and when nerves were activated (*naojin chudong* 腦筋初動).[95]

Overlapping with the years when Qing reformers started to prioritize primary education over higher learning, Liang realized the expediency of script reform for the purpose of training generations of young minds who accessed information easily and rapidly, and made better use of the natural composition of their brains. Liang's endorsement of Shen Xue's enigmatic treatise on the metaphysics of information and mind was an extension of his own reformist vision of education, and the role of the brain and mental work in it. Shen had indeed captured an essential component of the global modern information economy. In the following years, the metaphysics of information was replaced with the late-Qing and Republican scholars' concern for inventing a national mind. But still, efficiency in mental labor remained as the underlying assumption that drove and legitimized the reform of the script.

Conclusion

The cerebral mind quickly became a keyword in the late-Qing reformers' vocabulary for a new form of literacy, and even a new form of literature. In 1898, Qiu Tingliang, one of the leaders of the movement to write in vernacular speech (*baihua* 白話), noted that the relationship between thought (*sixiang*) and literature (*wenxue*) was like the relationship between nerves and

[95] Qichao Liang, "Lun youxue [On Children's Education]" in *Yinbingshi wenji, di yi ce,* ed. Liang Qichao (Taipei: Taiwan zhonghua shuju, 1960), 46-47. Murao Susumu argued that Liang's use of *danao* and *xiaonao* referred to the Yogacaric seventh consciousness (*manas*) and sixth consciousness (*manovijnana*). John Jorgensen referenced Murao to claim that Liang's thoughts on education were influenced by Yogacara thought, although he noted his hesitation to accept this position in a footnote. Just based on Liang's *On Children's Learning*, I do not think it is possible to suggest that Liang was drawing on yogacara theory. See, Murao Susumu, " 'Banki sen-sen': Jimu hō jiki no Ryō Keichō (The Luxuriant Forest: Liang Qichao and the China Progress Period)," in *Kyōdō kenkyū Ryō Keichō: Seiyō kindaishisō juyō to Meiji Nihon*, comp. Hazama Naoki (Tokyo: Misuzu, 1999), 44; John Jorgensen, "Indra's Network: Zhang Taiyan's Sino-Japanese Personal Networks and the Rise of Yogacara in Modern China," in *Transforming Consciousness: Yogacara Thought in Modern China*, ed. John Makeham (Oxford: Oxford University Press, 2014), 79.

the body. The cultivation of better thought was possible only through the use of vernacular speech, which would facilitate the process of writing and reading, and make better use of cerebral/mental energy (*naoli* 腦力). In 1902, when Liang Qichao penned his landmark publication on the theory of the modern novel in China, he emphasized the novel's emotional efficacy through a neurophysiological terminology underlining stimuli (*ciji*), nerves (*shenjing*) and brain (*naojin*).[96] In the following years, the same trope permeated the society at large through newspapers, novels, and textbooks.[97] In 1904, "Mr. Ailuo's Brain Tonic" hit the market in small bottles and promised better brain power to students and adults—and miraculously, it managed to stay there until the 1950s.[98] In 1905, one of the first Chinese science-fiction novels narrated the story of Mr. Braggadocio's electrical brain.[99] In 1909, Lufei Kui, the future publishing giant, demanded the simplification of Chinese characters in order to save the students'

[96] Qichao Liang, "Lun xiaoshuoyu qunzhi zhi guanxi [1902]," in *Liang Qichao Quanji*, vol. 2 (Beijing: Beijing chubanshe, 1999), 884-886. The terms Liang selected for his theory of the novel bear significance. Stimulation (*ciji* 刺激) and nerve (*shenjing* 神經) were both Japanese neologisms —*shigeki* and *shinkei*, respectively. Liang's use of these terms shows his affinity with Japanese publications, signaling a greater history that demands a new exploration of the interconnection between neurophysiology and the birth of the modern novel. For a similar history, but in the case of Victorian England, see, Nicholas Dames, *Physiology of the Novel: Reading, Neural Science, and the Form of Victorian Fiction* (Oxford University Publishing, 2007); Richard Menke, *Telegraphic Realism: Victorian Fiction and Other Information Systems* (Stanford: Stanford University Press, 2008).

[97] *Gezhi jiaokeshu jiaoshou fa [Scientific Textbooks' Teaching Method]* (Shanghai: Commercial Press, 1906).

[98] Zhongmin Zhang, "Bunaode zhengzhixue: 'ailuo bunaozhi' yu wanqing xiaofei wenhua de jiangou," *Xeshu yuekan*, vol. 43, no. 9 (Sept., 2011), 145-154; Ning Zhang, "Nao wei yishen zhi zhu: Cong 'ailuo bunaozhi' kan jindai zhongguo shentiguande bianhua," *Zhongyang yanjiuyuan jindaishi yanjiusuo jikan*, no. 74 (Dec., 2011), 1-40; Sherman Cochran, *Chinese Medicine Men: Consumer Culture in China and Southeast Asia* (Cambridge: Harvard University Press, 2006), 38-63.

[99] Shaoling Ma, "'A Tale of New Mr. Braggadocio': Narrative Subjectivity and Brain Electricity in Late Qing Science Fiction," *Science Fiction Studies*, vol. 40, no. 1 (March, 2013), 55-72.

cerebral energy (*sheng naoli*).[100] In 1914, Xing Dao, a phoneticizer, urged to stop the empty use of cerebral energy (*wufu kongfei naoli* 無復空廢腦力).[101] And so on…

The pressure that industrialization and telegraphic communication put on the use of Chinese characters was critical for the late-Qing thinkers' reimagination of the uses and abuses of the Chinese writing system. The central problem was that of mental labor, of the necessity to reduce the socially necessary labor-time in accessing, consuming, producing, and transmitting information. Chinese characters, reformers thought, simply did not conform with the demands that modern information society imposed on the human minds. But the practical concerns aside, scholars like Shen Xue reevaluated and blended the material conditions and technologies of work and communication with translated scientific theories and millenia-old philosophical traditions to reassemble the Chinese body and mind, and offer a solution, a way out for the Chinese society at large in times of escalating social, political, not to mention epistemological and ontological, uncertainty.

The intertwined story of script and the varying meanings of "psyche" lead to two major questions that the following chapters will address. The first question is on the future of the script and mind. In the 1920s, when young Chinese psychologists who received their training in Europe and the US returned back to China, the professionalization of psychology as an academic discipline closed down the late-Qing philosophical orders that were conducive to defining the human mind in alternative ways. The import of behavioral psychology with its emphasis on statistical measurement mostly replaced Confucian and Buddhist expositions of cognition with a mechanized understanding of the mind.

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[100] Kui Lufei, "Putong jiaoyu dang caiyong sutizi [Mass Education Must Use Common Characters]," *Jiaoyu zazhi*, vol. 1, no. 1 (1909), 1. See Chapter 4 for the history of Chinese Simplification Project.

[101] Dao Xing, ibid., 11.

An odd piece written by Liang Qichao in 1922 clarifies this point: when the first Chinese Association of Psychology was established in 1922, and its first journal dedicated to modern experimental psychology, unambiguously named *Psychology* 心理, made its debut the same year, Liang Qichao gave a peculiar speech at the Association, which was subsequently published in the journal. "A Simple Survey of Buddhist Psychology" (佛教心理學淺測) sought to explain the psychological theory behind the "emptiness of five aggregates 五蘊皆空," and claimed, echoing Shen Xue in some respects, that the five sensory experiences ("aggregates") were empty in their own natures. The Self, in other words, was "empty."[102] In contrast to late-Qing scholars, however, who perused these theories to unlock greater political and ontological knots, Liang's piece in 1922 signified a philosophy of mind that was losing blood. Almost all the articles published in *Psychology* were rigorously experimental, data-based, and statistically driven; and almost none of the psychologists was interested in late-Qing theories of the mind. The first generation of psychologists in China wanted to measure human experience, not ponder it. Nevertheless, the concern with the function of the Chinese script continued as part of the psychological profession, albeit in a different way. The first generation of psychologists in China were less concerned with phoneticization, and more with the rationalization and optimization of Chinese characters themselves. The third and fourth chapters will address their studies.

The second important question is one that I have deliberately avoided throughout this chapter. A phonetic script was a global infrastructural imposition as well as an imposition by capitalist modernity that valorized mental labor. But despite the colonialist and imperialist conditions in which reformers were compelled to face phoneticization, one thing was certain: the phonetic script was there in China to stay. Starting with Lu Zhuangzhang, Cai Xiyong, Wang

[102] Qichao Liang, "Fojiao xinlixue qiance," *Xinli*, vol. 1, no. 4 (1922), 1-16.

Bingyao, Shen Xue, and Liang Qichao, dozens of more reformers demanded a phonetic alphabet in the following years. But in the absence of a common language in the empire, what speech was the hypothetical phonetic alphabet going to represent? Whose mind, in other words, was going to be optimized? If a Mandarin speaker's, then which one? Mandarin speaker in Beijing, or the one in Nanjing? What about the mutually incomprehensible languages spoken throughout the empire? What was going to happen to Cantonese or Hokkien or Hakka speakers, or dozens of others? In other words, what were the political and social implications of a phonetic linguistic infrastructure in a land of extreme linguistic diversity? The next two chapters goes beyond mental labor to understand the possibilities and limits of alphabetical infrastructures in crippling or enabling linguistic justice.

The double helix of mental optimization and the technopolitics of script invention in a linguistically diverse landscape constitutes the DNA of this dissertation. A script was a fundamental part of building an information society, but it did not unilaterally determine its constitution. Chinese reformers, intellectuals, literary figures, psychologists, government officials, party members, and others who invested in new scripts imagined completely different information societies through assembling their political visions and phonetic scripts in radically different ways. Each script, the following chapters suggest, had the intrinsic potential to weave new webs between humans, machines, minds, and languages.

Chapter 2

Capital, Empire, Letter: Romanization in Nineteenth-Century China

Late-Qing scholars' foray into script reform, as I have argued in the first chapter, was the product of a globalizing knowledge economy that emerged from industrial capitalism, new information infrastructures, and communication technologies which fundamentally transformed the epistemic foundations of writing systems and the social relations built around them. Shen Xue was the first to offer an anatomical interpretation of language and information in China, and in doing so, as I briefly mentioned, he was most likely exposed to English publications of the missionaries that expounded on anatomical interpretations of script and speech in the earlier decades. Since the early nineteenth century, Western missionaries were leading multiple Romanization projects in India and China as a direct extension of British colonialism and the globalization of industrialized print. As the Romanization of local languages in South, Southeast, and East Asia turned out to be a necessity to make local cultures legible for imperial as well as evangelical missions, missionary alphabetization became a project that was closely linked to industrial capitalism and colonialism. Capital, empire, and the alphabet were inseparable in the nineteenth century.

The following pages will examine the nineteenth-century alphabetizations of Chinese languages in the plural. Some scholars, like John DeFrancis, have argued that missionary alphabetization was the origin of Chinese phoneticization projects, tracing what in my opinion is an untraceable connection between seventeenth-century Jesuit Romanizations, nineteenth-century Protestant Romanizations, and late-nineteenth and twentieth-century Chinese phoneticizations.[103] On closer look, however, the distinctive character of each project becomes

[103] John DeFrancis, *Nationalism and Language Reform in China* (Princeton: Princeton University Press, 1950), 14-28.

clear. Matteo Ricci and other Jesuits' scarce works on Chinese Romanization in the seventeenth century targeted a specific group of Europeans who could have preliminary access to Chinese through the Roman Alphabet. The Protestant spirit of alphabetization, on the other hand, emerged out of an industrialist and evangelical desire to carry the Bible to the minds of the Chinese in the cheapest and most efficient way possible, as I will argue in this chapter. As the rest of the dissertation will make clear, even though there was a direct connection between Protestant Romanizations and turn-of-the-century Chinese script reforms, it is incorrect to search for the historical roots of Chinese reforms in Western endeavors. Missionary alphabetizations preceded the Chinese script reform movement, but they were not its primary instigators. Indeed, the next chapter will demonstrate that the invention of the Chinese National Phonetic Alphabet (*zhuyin zimu*) in the early twentieth century was a direct response to Western Romanizations, even though the missionaries eventually became an integral part of the Chinese phoneticization movement in the 1910s and 1920s. As such, the historicity of scripts should come before the specter of similarity.

Instead of viewing missionary Romanizations as a precursor to the Chinese phoneticization movement, this chapter historicizes the nineteenth-century Chinese Romanizations within a global moment of missionary Romanization projects that were as much an extension of colonialism as of industrialized print. Nineteenth-century missionaries were the harbingers of industrialized printing technologies, and they were thus operating through the infrastructure of the movable metal type. Nineteenth-century missionaries were transparent about their search for economy in print, and their Romanization of languages followed a similar logic: the majority of the missionaries believed that a phonetic alphabet, in particular the Roman Alphabet, was the

most efficient way to represent a given speech, as it economized the transmission of evangelical knowledge from missionary presses to the minds of the local populace.

In this chapter, I would thus like to suggest that the missionaries' efforts at Romanization and phoneticization followed the infrastructure of printing machines and the industrialist logic of standardizing and economizing labor and time in the production and transmission of information—a logic that persisted in China, as the country continued industrializing. This chapter begins with an overview of the industrialization of print technologies and the missionaries' role in their spread to South and Southeast Asia, concomitant with British imperialism. At this early stage, missionary-printers were preliminarily Romanizing local languages in an effort to publish bilingual texts and dictionaries. In doing so, they were technologizing the local scripts, bringing them into the industrial age of print in an effort to disseminate Western knowledge among local cultures. The industrial technologization of the Chinese script(s) was a product of this global typographical revolution.

The second section turns from print technologies to the missionary Romanization of local speeches in China after the 1850s, which was part of the greater Romanization movement taking place in the world simultaneously, as exemplified by the Alphabetical Conferences organized by missionaries in London in 1854. The missionaries until then, and even afterwards, were in awe with the Chinese script itself. Indeed, Robert Morrison, the first and the most revered missionary from the London Missionary Society to be sent to China, put the Chinese writing system above the alphabet in the following words:

> To convey ideas to the mind, by the eye, the Chinese Language answers al the purposes of a written medium, as well as the Alphabetic system of the West, and perhaps in some respects, better. As sight is quicker than hearing, so ideas reaching the mind by the eye, are quicker, more striking, and vivid, than those which reach the mind by the slower progress of sound.... The

> Chinese fine writing … darts upon the mind with a vivid flash; a force and a beauty, of which Alphabetic Language is incapable.[104]

In spite of their awe for the imperial culture of information, the Chinese characters were inexpedient for the missionaries' evangelical project in the following decades. From the 1850s onward, the missionaries considered the Roman Alphabet, and in some cases other phonetic scripts, as the most efficient way to print and evangelize in myriad local languages. This was the first time that the missionaries were allowed to reside in the treaty ports, and were thus exposed to Chinese linguistic diversity. In the course of half a century, they Romanized more than two dozen different speeches in China, from Shanghainese to Ningbo, to Cantonese, to Hakka, creating an alternative information circuit that was alphabet- and speech-based. Even though Romanized publications exclusively consisted of biblical excerpts, rather than translated literature or primers in local languages, this was the first time in Chinese history that linguistic diversity found expression on printed paper. And this had a lasting impact on the politics of language in China in the twentieth century, which will be the subject of the next chapter.

Despite an undeniable link between Euro-American imperialism and the Romanization of Chinese languages in the nineteenth century, it would be incorrect to collapse the two into one. (Semi-)Colonialism in China, especially after the opening of the treaty ports following the Qing defeat in the Opium Wars (1839-1842), operated at different linguistic registers. Evangelical missionaries sought to reenact the Pentecost in China, and were invested in different languages spoken throughout the empire, although they mostly limited their Romanizations to the coastal regions where their operations were the most intensive. For the treaty port officials, on the other hand, standardization of correspondence for diplomatic as well as bureaucratic matters were of

[104] Robert Morrison, *A Dictionary of the Chinese Language in three parts, vol. 1, part 1* (Macao: Printed at the Honorable East India Company Press, 1815), xi.

utmost importance, such as language instruction for foreign diplomats. Missionaries and the East India Company's officials and later the colonial officials in treaty ports frequently crossed paths, especially since the missionaries possessed the much-needed linguistic capital, but the alliance between the two was more pragmatic and functional, and never univocal. Sometimes the two joined hands in the printing of dictionaries and in diplomatic matters, such as the missionary lexicographer-printer Samuel Wells Williams' appointment as the Secretary to the American Legation in 1855; other times they collided.

The third section examines this collision through the British diplomat Thomas Francis Wade's (1818-1895) Romanization of Mandarin as spoken in Beijing in the 1860s. Wade's Romanization became the international standard for transcribing Mandarin from the 1890s to the 1980s, when it was replaced by the PRC's *pinyin.* From its invention in the 1860s to its internationalization in the 1890s, however, there was a constant tension between Wade's Romanization and the missionaries' Romanizations, because the former did not meet the requirements for the latter's multilingual vision of China—Wade's Romanization only represented Beijing Mandarin, and was thus incapable of representing Mandarin as spoken in other regions. By the 1870s, the missionaries had realized that it was impossible to create a common alphabet for all languages in China, but as a counterweight to Wade, they strived to invent a common alphabet that could represent all the vernacular variants of Mandarin, thus providing an infrastructural technology to all speakers of Mandarin, not only to those living in Beijing. Their endeavors culminated in the *Standard System for Mandarin Romanization* in the 1890s, but it was not sufficient to replace Wade's dominance. During the same decade, the Chinese reformers themselves embraced the phoneticization movement for their own purposes, and put an end to Romanization in their search for a grammatological and linguistic sovereignty.

The missionaries briefly receded to the background, only to return in the 1920s, as the next chapter will narrate.

I. The Typographical Revolution and Evangelicalism

The invention of the iron hand press in Britain around 1800 was a critical moment in the world history of print. Until then, the wooden hand press reigned supreme for almost three hundred and fifty years without much change. As an extension of industrial mechanization underway in Britain, Charles Earl Stanhope (1753-1816), a mathematician and engineer whose interests ranged from printing treatises on the paddles of steamboats to inventing mechanical instruments to perform logical operations, engineered the iron hand press with the aid of an ironsmith. The main drive behind the mechanization of the hand press was the rationalization of printing, which would reduce the need for skilled labor by supplementing it with sophisticated mechanical actions. Stanhope introduced a system of compound levers and a screw motion that raised the platen after the pull, which significantly increased pressure at the moment of impression.[105] As the British printer Charles Frederick Partington claimed, the Stanhope press introduced novelties that the wooden press was not capable of generating. First of all, as opposed to the wooden press, where the platen was only half the size of the sheet, which required two motions to print an entire sheet, the new platen was made large enough to print a whole sheet of paper at once. This was a technique that the iron framing enabled, for "[it] will not admit of any yielding, as the wood always does, and indeed is intended to do, the head being often packed up

[105] Colin Clair, *A History of Printing in Britain* (New York: Oxford University Press, 1966), 209-210; Horace Hart, *Part VII: Charles Earl Stanhope and the Oxford University Press* (London: The Printing Historical Society, 1966), 366, 399.

with elastic substances, such as pasteboard, or even cork." The iron hand press changed the bodily labor of printing as well, as Partington explained:

> Indeed it is so different from the other press, that when an experienced pressman first tries it, he cannot feel any of that re-action which he has been accustomed to, and will not believe, till he sees the sheet, that he has produced any impression at all; and for many days after he begins to work at an iron press, he by habit throws back all the weight of his body in such a manner, as to bring the handle up to its stop with a concussion that shakes his arm very much; and in consequence most pressmen, after a few hours' work, feel inclined to give up the iron press; but when they have once got into a new habit of standing more upright, and applying only as much force as it requires, the labour of the pull becomes less than that of running the carriage in and out; and men who are accustomed to the iron presses only, would be scarcely able to go through the work of the old press.[106]

Stanhope, in a philanthropic spirit, never patented his invention, which allowed improved versions to soon flood the market. With more advanced iron hand presses, a print shop with large amounts of daily output could be run by as few as two people—a skilled worker who put ink on type and a less skilled pressman who did the levering business.[107] Thomas Curson Hansard, another established British printer noted the labor- and time-saving qualities of the new invention with an industrialist enthusiasm: "[Wooden press] requires great labour to produce an adequate impression from heavy works in small letter; it must, therefore, have been an important point to gain an accession of power, with, at the same time, a diminution of labour. … The Stanhope press … is capable of all the force of the common press, with, perhaps, a tenth of the labour."[108]

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[106] Charles Frederick Partington, *The Printers' Complete Guide* (1825), 265-266, quoted in Richard-Gabriel Rummonds, *Nineteenth Century Printing Practices & Iron Handpress, vol. 1* (New Castle; London: Oak Knoll Press & The British Library, 2004), 111-112.

[107] Nile Green, "Persian Print and the Stanhope Revolution: Industrialization, Evangelicalism, and the Birth of Printing in Early Qajar Iran," *Comparative Studies of South Asia, Africa and the Middle East*, vol. 30, no. 3 (2010), 415-416.

[108] Thomas Curson Hansard, *Typographia* (1825), 637-647, quoted in Richard-Gabriel Rummonds, *Nineteenth Century Printing Practices & Iron Handpress, vol. 1* (New Castle; London: Oak Knoll Press & The British Library, 2004), 115.

The physical properties of iron hand presses enabled them to be transported to other corners of the world. Composed of a single iron piece with minimum moving parts, the new hand presses could endure the conditions of long-distance transport in ways that wooden presses with multiple moving parts could not. By the 1820s, the iron hand presses were used in a variety of places from New York to Hawaii, to the Malay Peninsula, to the Middle East. As the historian Nile Green argued, the globalization of industrialized printing grew hand in hand with the evangelical missionary societies formed in London, and later in other places in Europe and the US, whose biblical projects relied on the use of sturdy printing machines. The London Missionary Society (1795), the Church Missionary Society (1799), and the British and Foreign Bible Society (1804) slowly entered into the South Asian and East Asian markets through importing these technologies to new centers of missionary printing. Starting in 1815 and 1816, the American Board of Commissioners for Foreign Missions (ABCFM) and the German Missionary Society also started exporting these machines to the lands of the "heathen."[109] As a matter of fact, at the request of the ABCFM missionary Elijah Coleman Bridgman (1801-1861), a Washington and an Albion iron hand press, improved versions of the Stanhope press, were sent to Canton in the 1830s.[110] In the following decades, other missionary societies imported similar iron hand presses to China, along with other newly developing print technologies.[111]

The industrial age of metal gradually changed the entire landscape of printing in the world. Not only were presses but also types were cut out of metal, and the missionaries were the leading typographers who commissioned the casting of new metal types for Roman as well as non-

[109] Green, ibid., 411.

[110] Christopher Reed, *Gutenberg in Shanghai: Chinese Print Capitalism, 1876-1937* (Vancouver: UBC Press, 2004), 42.

[111] ibid., 66-83.

Roman scripts. During the early nineteenth century, when missionaries from recently-established societies reached India and China, they encountered local languages with a variety of scripts. At this initial stage, when the missionaries started producing bilingual texts including dictionaries, adapting local scripts to new technologies was an integral part of the "communication of intellectual, moral, and religious truth, in the most inviting form."[112] Some of the earliest metal types were indeed invented at the Baptist Mission Press' type foundry in Calcutta, where various types for Arabic, Persian, Bengali, Oriya, Burman, and Gujarati scripts, among others, were cast in the 1820s.[113]

The first partial font for Chinese characters was also cut by Baptist missionaries at Serampore, only fifteen miles from Calcutta, between 1805 and 1810, as part of the greater missionary business. Later on, the Baptist missionary Joshua Marshman commented on the new technology by the following words: "The Chinese characters in this work are printed from Metal Types. … [W]hile they add greatly to the legibility if not to the beauty of the Chinese characters, their being movable enables us to print … any Chinese work whatever, at an expense too by no means immoderate."[114] Compared to woodblock printing, which required the manufacture of entirely new sets of wooden blocks for each text, the movable metal types allowed the missionaries to combine discrete characters at will, increasing both productivity and durability.

The most famous and widely-used font in Chinese characters was undertaken by Peter Perring Thoms (d. 1851) in 1815. A printer and translator for the East India Company, Thoms brought movable type from London to Macao to be of service to Dr. Robert Morrison (1782-

[112] "Advertisement," in *Specimen of Printing Types in use at the Baptist Mission Press* (Calcutta: The Baptist Mission Press, 1826).

[113] ibid.

[114] Joshua Marshman, *Elements of Chinese Grammar* (Serampore: Mission Press, 1814), xvi, quoted in Reed, ibid., 34. Another partial cut font in Malacca in 1814 followed Marshman's font.

1834). Morrison was the first missionary in Canton dispatched by the London Missionary Society (LMS), and the first to publish *A Dictionary of the Chinese Language* with funds granted by the EIC—for the final publication in six volumes which took eight years to complete, from 1815 to 1823, EIC spent $60,000.[115] Comparing his lexicographical masterpiece to the earlier dictionaries printed in the West, Morrison correctly noted that his work contained around 40,000 Chinese characters that closely followed the Kangxi Dictionary, an imperially commissioned dictionary originally published in 1716.[116] The publication of this dictionary was made possible with Thoms' two Chinese fonts, which he cut with the assistance of Chinese and Portuguese workers.[117] In the following decades, Thoms' assistants managed to cut more than 200,000 characters, which proved to be the most useful for missionary publications, for they were the most durable. Massive and expensive, the large fonts contained about 46,000 characters (each about an inch square) and filled sixty cases; the small fonts, which were used the most, contained around 22,000 characters and were held in sixteen cases.[118] Beside Morrison's, two more dictionaries that were as significant in the history of Chinese lexicography as Morrison's were printed with these fonts. One was Walter Henry Medhurst's (1796-1857) *Dictionary of the Hok-këèn Dialect of the Chinese Language*, published in 1837 in Macao at the East India Company's Press.[119] After the Opium Wars, the governor of Hong Kong Henry Pottinger offered these fonts

[115] Samuel Wells Williams, *A Syllabic Dictionary of the Chinese Language: Arranged According to the Wu-fang Yuen Yin, with the Pronunciation of the Characters as Heard in Peking, Canton, Amoy, and Shanghai* (Shanghai: American Presbyterian Mission Press, 1874), v.

[116] Morrison, ibid., x.

[117] Reed, ibid., 36.

[118] William Milne, *A Retrospect of the First Ten Years of the Protestant Mission* (Malacca: Printed at the Anglo-Chinese Press, 1820), 238; Frederick Wells Williams, *The Life and Letters of Samuel Wells Williams, LL.D.: Missionary, Diplomatist, Sinologue* (Wilmington, Delaware: Scholarly Resources Inc., 1972 [1889]), 244.

[119] Water Henry Medhurst, *Dictionary of the Hok-këèn Dialect of the Chinese Language* (Macao: Printed at the Honorable East India Company's Press, 1832). Medhurst finished the compilation in 1832, but it took another five

to Samuel Wells Williams, who used them to print his own *A Tonic Dictionary of the Chinese Language in the Canton Dialect* in Canton.[120] Apart from these dictionaries, about twenty other English-Chinese works were printed with these fonts until December, 1856, when the fonts were destroyed along with the factories in Canton during the Second Opium War (1856-1860).[121]

As the number of missionary publications were proliferating, the calculation of cost and labor became a primary concern for the missionaries. The above-mentioned Walter Henry Medhurst offered the most detailed analysis of printing technologies. Also a missionary from the London Missionary Society, Medhurst was a pioneer printer who not only printed in Chinese but was also instrumental in industrializing Arabic-lettered printing in Malacca, where he was managing the printing operations from 1817 onwards.[122] Comparing xylography, lithography, and letterpress in printing Chinese characters, Medhurst concluded in 1838 that letterpress, in connection with the developing technology of the iron press, was the most favorable technology in the long run.[123] As another missionary John C. Lowrie in Canton pointed out, "We live in an era of metal and steam … hence, I am strongly in favor of giving full and fair trial to our Chinese metal type."[124]

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years for the Company to print. Medhurst's dictionary was based on Zhangzhou speech, and it partially corresponded to what has been later dubbed as Hokkienese. In the 1870s, Carstairs Douglas was a fierce critic of Medhurst's use of the term "dialect" while referring to Hokkienese. Besides the misidentification, Douglas claimed that the pronunciations were not accurate even for Zhangzhou speech. For purposes of simplicity, I will call Medhurst's work a dictionary of Hokkienese. Carstairs Douglas, *Chinese-English Dictionary of the Vernacular or Spoken Language of Amoy* (London: Publishing House of the Presbyterian Church of England, 1899 [1873]), viii.

[120] Samuel W. Williams was the only missionary who was trained as a printer in Utica before arriving in China. Immediately after his arrival, he took over the management of the printing office that had been publishing *Chinese Repository* since 1832. See, Frederick Wells Williams, ibid., 47-63.

[121] Samuel W. Williams, "Movable Types," *Chinese Recorder*, vol. 6 (1875), 26. For a list of books printed under the supervision of Samuel Williams, see, Frederick W. Williams, ibid., 244-245.

[122] Green, ibid., 411.

[123] Reed, ibid., 31-32.

[124] Letter dated 5 April 1843, cited in MPC, 3-4, quoted in Reed, ibid., 32.

In the following decades, the Chinese metal type enjoyed the endorsement it received from the missionaries. Until the First Opium War (1839-1842), the missionaries were not allowed to establish print shops within the territory of the Qing dynasty, and neither were they allowed to seek the help of native Chinese wood-cutters to cut metal types. Some, like Elijah Coleman who imported the iron hand press to Canton in the 1830s, were working there illegally, but the risks were indeed too high. Three Chinese punch-cutters working for Samuel Williams in Canton were imprisoned in 1834 and branded as traitors (*hanjian*) for working with foreigners.[125] These constraints forced the missionaries to print in Macao, Malacca, Penang, Batavia, Serampore, Singapore, and Calcutta, where they could still seek the labor of Chinese migrants, and cast types for missionary publications.[126] The missionaries during this period followed the outsider's strategy of striving to disseminate Western knowledge in China via composing and printing in Chinese characters.[127]

After the opening of the treaty ports, missionary presses proliferated in the coastal cities, concomitant with the inflow of Western capital. The 1840s and 1850s thus marked a significant change in missionary work. As missionaries were allowed to move into the coastal cities and set up new presses, the transition from outsiders to insiders brought with it the possibility that

[125] Samuel W. Williams, "Movable Types," 26-27.

[126] For a list of missionary and non-missionary attempts at printing Chinese fonts from the 1830s onward, see, K. T. Wu, "The Development of Typography in China during the Nineteenth Century," *The Library Quarterly: Information, Community, Policy,* vol. 22, no. 3 (Jul., 1952), 294-96; Samuel W. Williams, "Movable Types," *Chinese Recorder*, vol. 6 (1875), 26; Ibrahim bin Ismail, "Samuel Dyer and His Contributions to Chinese Typography," *The Library Quarterly*, vol. 54, no. 2 (Apr., 1984), 162. Samuel Dyer was the most exceptional figure in punch-cutting, and he was the first to compare the costs of lithography, typography, and wood-block printing. See, Evan Davies, *Memoir of the Rev. Samuel Dyer* (London: John Snow, 35, Paternoster Row, 1846) 131-141.

[127] This model of disseminating Western knowledge was exemplified best by the Society for the Diffusion of Useful Knowledge in China, established by missionaries in 1834. See, Michael C. Lazich, "The Diffusion of Useful Knowledge in China: The Canton Era Information Strategy," in *Mapping Meanings: The Field of New Learning in Late Qing China*, eds. Michael Lackner and Natascha Vittinghoff (Leiden: Brill, 2004), 305-327; Songchuan Chen, "An Information War Waged by Merchants and Missionaries at Canton: The Society for the Diffusion of Useful Knowledge in China, 1834-1839," *Modern Asian Studies* 46, 6 (2012), 1705-1735.

evangelization in China could take place rapidly by devising new phonetic alphabets for local Chinese languages. This missionary phoneticization movement that started in the early 1850s did not replace the missionaries' zeal in printing in Chinese characters, but it significantly transformed their relationship to print and language in China.

II. Missionary Romanizations in a Multilingual China

The increase in the number of missionary presses in China, India, and the rest of the world in the 1840s and 1850s gave a renewed impetus to the Romanization of local languages, which until then was only partially undertaken by the missionaries in their bilingual publications. The movement had indeed started with the infamous orientalist Sir William Jones (1746-1794) in the late eighteenth century, who laid the ground for the theory of Indo-European languages and sought to write Indian languages in the Roman Alphabet, as a strategy to assimilate the local cultures of information into an emerging imperial scholarly tradition that employed the Roman letters to accumulate knowledge and power. Only in the 1840s and 1850s, however, the movement turned into a missionary project to Romanize local languages in an effort to open a new channel of communication between the missionaries and the myriad local linguistic communities, the languages of whom were described as "diseases" by some of the leading missionary linguists, such as the famed orientalist Friedrich Max Müller (1823-1900).[128]

In 1854, a series of Alphabetical Conferences were organized in London with the purpose of determining a common alphabet for the Jewel in the Crown—one that could be exported to other colonial and semi-colonial places as well. A major name in the Alphabetical Conferences

[128] On the history of missionary language debates in British India, see, Robert A. Yelle, *Language of Disenchantment: Protestant Literalism and Colonial Discourse in British India* (New York: Oxford University Press, 2013), especially 33-70.

was Max Müller himself. In *Proposals for a Missionary Alphabet* that he penned for the conferences, Müller adopted a physiological approach to the problem of linguistic transcription. Sounds, noted Müller, were guttural, palatal, labial, lingual, and dental, produced through varying physiological assemblies of the speech organs.[129] As such, "how can these principal sounds," he asked, "be expressed by us in writing and printing, so as to preserve their physiological Value, without creating typographical Difficulties?"[130] According to Müller, the solution to all problems was the creation of a Physiological Alphabet.

Müller's use of the term "value" signaled the link between the industrialization of printing, valorization of physiological labor under capitalism, and the colonial alphabetization of languages. Speech was an act of physiological labor, mechanically produced by organs, and each letter of the so-called Physiological Alphabet was the inscription of a given physiological form. As such, Müller's Alphabet was not only the transcription of organ clusters, but also a powerful mechanism to tame the organs of the speech, to give them the "correct" shape, to discipline the labor of speech, and cure the disease of the mind. Alphabetization around the world in the nineteenth century was indeed the valorization of human speech under a capitalist world order that was transforming labor relations in the production of commodities, information, language, and thought. The missionary use of the alphabet in the nineteenth century followed a logic that put efficiency in the production of information and the rectification of thought at the forefront. That efficiency, many of the alphabetizers believed, could not be achieved with anything other than a phonetic alphabet.

[129] Max Müller, *Proposal for a missionary alphabet* (London: Printed by A. and G. A. Spottiswoode, 1854), 16.

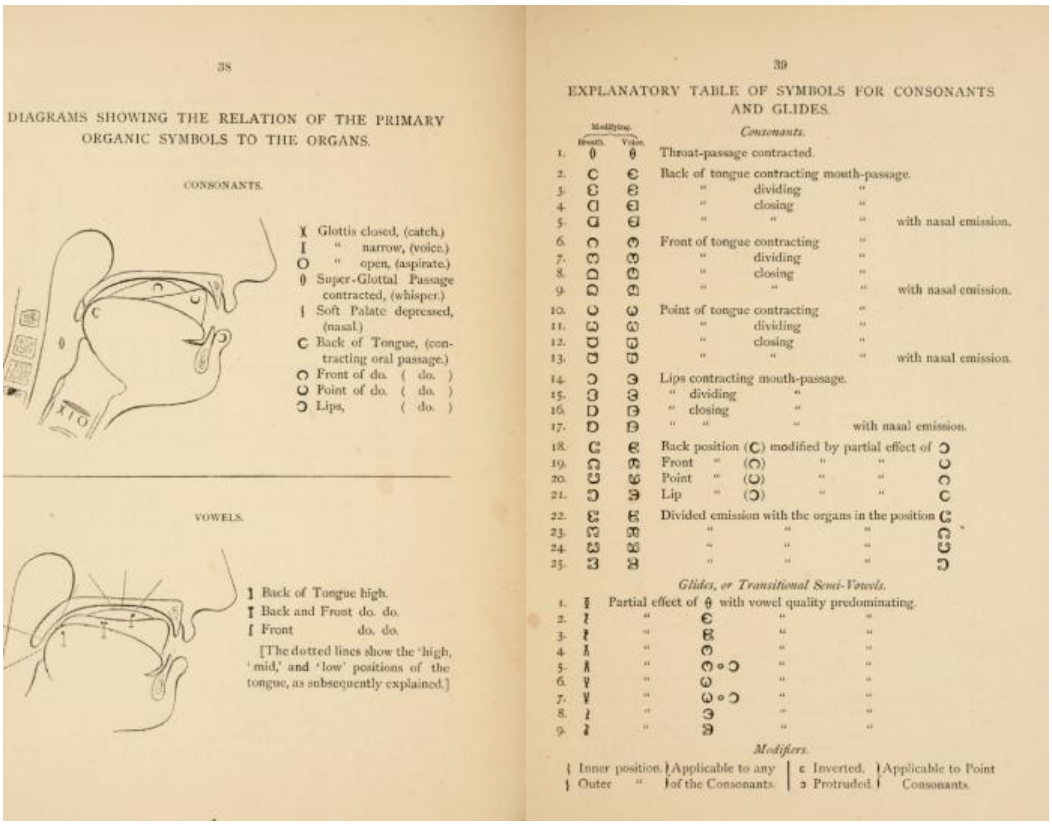
[130] ibid, 26.

Physiological Alphabet for Müller was nothing other than the Roman Alphabet, but for other scientists in the British Empire, an even more efficient system of phonetic writing could be invented. Alexander Melville Bell's *Visible Speech: The Science of Universal Alphabetics or Self-Interpreting Physiological Letters* (fig. 2.1), published in 1867, was one such system. The mechanics of speech was what mattered to Bell—and apparently to the rest of his family, since his son Graham Bell invented the telephone. The lungs operated as the "bellows," and the larynx, the pharynx, the soft palate, the nose, and the mouth were modifiers of breath in what he called "the speaking machine."[131] While sharing the same principles with the missionaries, Bell's project argued for a new form of universalism that was based on the physiology of the sound, and that could be represented by any graphic sign, not necessarily the Roman Alphabet. He thus made the world of writing and speech purely physiological, the bodily occurrence that was common to all humankind.

Bell's universalism was deeply intertwined with colonialism and evangelism. *Visible Speech* not only promised "the speedy diffusion of the language of a mother country throughout the most widely separated COLONIES," but also now that the foundation was laid, "the Linguistic Temple of Human Unity may at some time, however distant the day, be raised upon the earth." After some more thinking on the issue, Bell argued that this linguistic temple was none other than English, underscoring the imperialist visions of English language that ensued through the twentieth century. The implementation of his *Visible Speech* in China and India with their diverse languages and dialects could turn it into "a great social and political engine."[132]

[131] Alexander Melville Bell, *Visible Speech* (London: Simpkin, Marshall & Co., 1867), 11.

[132] ibid., 21-22.



38

DIAGRAMS SHOWING THE RELATION OF THE PRIMARY ORGANIC SYMBOLS TO THE ORGANS.

CONSONANTS.

Glottis closed, (catch.)
" narrow, (voice.)
" open, (aspirate.)
Super-Glottal Passage contracted, (whisper.)
Soft Palate depressed, (nasal.)
Back of Tongue, (contracting oral passage.)
Front of do. (do.)
Point of do. (do.)
Lips, (do.)

VOWELS.

Back of Tongue high.
Back and Front do. do.
Front do. do.

[The dotted lines show the 'high,' 'mid,' and 'low' positions of the tongue, as subsequently explained.]

39

EXPLANATORY TABLE OF SYMBOLS FOR CONSONANTS AND GLIDES.

Consonants.

	Modifying Breath.	Modifying Voice.	
1.	0	θ	Throat-passage contracted.
2.	C	Є	Back of tongue contracting mouth-passage.
3.	Ɛ	Ɛ	" dividing "
4.	Ɔ	Ɛ	" closing "
5.	Ɑ	Ɛ	" " " with nasal emission.
6.	C	Ɔ	Front of tongue contracting "
7.	Ɛ	Ɛ	" dividing "
8.	Ɔ	Ɛ	" closing "
9.	Ɑ	Ɛ	" " " with nasal emission.
10.	C	Ɔ	Point of tongue contracting "
11.	Ɛ	Ɛ	" dividing "
12.	Ɔ	Ɛ	" closing "
13.	Ɔ	Ɛ	" " " with nasal emission.
14.	C	Ɔ	Lips contracting mouth-passage.
15.	Ɛ	Ɛ	" dividing "
16.	Ɔ	Ɛ	" closing "
17.	Ɔ	Ɛ	" " " with nasal emission.
18.	Ɛ	Ɛ	Back position (C) modified by partial effect of C
19.	Ɛ	Ɛ	Front " (C) " " C
20.	Ɛ	Ɛ	Point " (C) " " C
21.	Ɔ	Ɛ	Lip " (C) " " C
22.	Ɛ	Ɛ	Divided emission with the organs in the position C
23.	Ɛ	Ɛ	" " " C
24.	Ɛ	Ɛ	" " " C
25.	Ɛ	Ɛ	" " " C

Glides, or Transitional Semi-Vowels.

1.	ɣ	Partial effect of θ	with vowel quality predominating.	
2.	ɾ	"	Є	" "
3.	ɾ	"	Ɛ	" "
4.	ɦ	"	C	" "
5.	ɦ	"	C ∘ Ɔ	" "
6.	ɣ	"	Ɔ	" "
7.	ɣ	"	Ɔ ∘ Ɔ	" "
8.	ɻ	"	Ɛ	" "
9.	ɾ	"	Ɛ	" "

Modifiers.

Inner position. Outer " } Applicable to any of the Consonants.
c Inverted. ɔ Protruded } Applicable to Point Consonants.

Fig. 2.1 - Alexander M. Bell, *Visible Speech* (1867)

Bell's imperial vision resonated with other missionaries. Earlier in 1844, the missionaries from the Morrison Education Society in Macao had already begun to instruct the locals in English "in order to awaken the Chinese mind from its long hibernation, and to give it an impluse [sic] that shall cause it to go forth in search of truth in a manner comporting with the high destiny of man.… [L]et them be taught to read and write and speak in the English language," noted the missionaries' report, "and their minds [will] at once [be] liberated."[133]

While the dissemination of the language of empire was a part of the drive for missionary Romanizations in China, it was not necessarily the primary catalyst. The missionaries were

[133] "The Sixth Annual Report of the Morrison Education Society, with minutes of its meeting," *The Chinese Repository*, vol. 13 (1844), 637-638.

foremost of all invested in carrying the religious message to the minds of the people in the most expedient way possible. The coastal provinces, where the number of missionary societies were growing since the 1850s, were home to speakers of languages who did not possess phonetic writing systems. Even though the missionaries in China never called their alphabets the Physiological Alphabet, their phonetic projects did carry with them the conceit that a phonetic alphabet was the most efficient medium of writing, which economized both printing and the transmission of biblical knowledge. With the global missionary force behind alphabetization and the ubiquitous presence of the missionaries in China, the invention of phonetic scripts became central to missionary work.

Until the 1850s, Romanization of Chinese languages was only partially undertook given the limitations of access, and there was not an agreed-upon Romanization method. What is striking about the above-mentioned three biggest dictionaries by Morrison, Medhurst, and Williams was that each was on a different, mutually unintelligible, vernacular speech: Nanjing Mandarin, Hokkien, and Cantonese.[134] In the ensuing decades, some of the missionaries were not happy with the designation of the term "dialects" for languages as distinct as Hokkien, and the (ultimately political) linguistic debate persists until today.[135] The major problem that stood before the missionaries was the invention of an alphabet that could accommodate linguistic differences in China.

[134] It is important to note that Walter H. Medhurst and Samuel W. Williams used the vernacular dictionaries *Shiwuyin* 十五音 and *Fenyun cuoyao* 分韻撮要 respectively to transcribe Hokkien and Cantonese in the Roman Alphabet. Native speakers helped the authors ascertain the correct pronunciations.

[135] Leaman noted in 1877 that Nanjing Mandarin could by and large be understood by fifteen out of eighteen core provinces, except Zhejiang, Fujian, and Guangdong. Same arguments were later made for northern Mandarin as well. It is hard to verify these claims. Rev. C. Leaman, "A Missionary Tour Through the Province of Sz'-chu'en," *Chinese Recorder,* vol. 9 (1878), 99.

Robert Morrison's Romanization of the Nanjing Mandarin was the first attempt—and for the English-speaking missionaries the most authoritative one until his death in 1834.[136] Elijah C. Bridgman, the founder of *Chinese Repository*, Walter Henry Medhurst, and other missionary printers and lexicographers followed Morrison's lead in transcribing Cantonese and Hokkien, but dissent started to emerge right after his death. By the early 1830s, as missionary Romanization was already becoming a world-wide phenomenon, the primary voice of the missionaries in China, *Chinese Repository*, was closely following the efforts to Romanize the "barbarous" languages in the Americas, British India, Siam, the Philippines, and other territories colonized by the West, some of which did not have a writing system to begin with.[137]

Chinese was different. It did have a well-established writing system that the missionaries greatly admired, but its complexity, they believed, was inexpedient for evangelical purposes.[138] Romanization was necessary both for training missionaries in speaking local languages *and* for spreading the Word among the Chinese. Morrison's system of transcription satisfied neither. For one, it lacked diacritics to designate the tones; and two, the letters were not capable of accommodating linguistic differences. To standardize orthography for all languages in China, *Chinese Repository* proudly announced in 1836 that the missionaries "have been in a great degree influenced by the efforts now making in India to render general … the adoption of one

[136] There were dictionaries in other Western languages as well. In 1844, Samuel W. Williams noted that there were two or three modes of transcribing a character among English sinologists, at least three among French, one among Portuguese, and one more among Germans. See, Samuel W. Williams, *An English and Chinese Vocabulary in the Court Dialect* (Macao: Printed at the Office of the Chinese Repository, 1844), iv.

[137] Lorrin Andrews, "Remarks on the Hawaiian dialect of the Polynesian language; prepared for the Repository," *Chinese Repository*, vol. 5, no. 1 (May, 1836), 12-21.

[138] Some missionaries even searched for the key to Biblical Mesopotamia in Chinese characters. Joseph Edkins, *China's Place in Philology: an Attempt to Show that Languages of Europe and Asia have a Common Origin* (London: Trubner and Co., 1871); Terrien de Lacouperie, *The Old Babylonian Characters and their Chinese Derivatives* (London: Babylonian and Oriental Record, 1888).

uniform system of orthography, suited to represent clearly and definitely the sounds of words in the Sanskrit, Persian, Arabic, and their cognate languages."[139] The reference was obvious: *Chinese Repository* demanded a copy of the orthography invented by the infamous orientalist Sir William Jones in India.[140]

Samuel Williams, the leading missionary printer and lexicographer in China, was the greatest opponent of Morrison's Romanization and the major supporter of William Jones' orthography. "The character 快," noted Williams, "has been written *kuai, c'oai, kouai, kwae,* and *kw'ai*; 生 has been written *xam*, *seng*, *sàng*, and *sang*; 妝 is *choam, tchouand, choand, chwang,* and *chwáng.*"[141] All for the *same* sound. With "dialects," the problems only proliferated: *eull, olr, ul, ulh, lh, urh, 'rh, í, e, lur, nge, ngí, je,* and *jí* were some of the ways employed by different authors to transcribe the character 而 in different speeches.[142] Standardization, especially for a missionary printer, was central to building a foundation for Western Sinology. Starting in 1841 with Elijah C. Bridgman's *Chinese Chrestomathy*, Williams' own *Early Lessons in Chinese in Canton Dialect*, and *Aesop's Fables* in Hokkien, William Jones' orthography made a headway into Cantonese and Hokkien, and in 1844 into Nanjing Mandarin as well again with Williams' *An English and Chinese Vocabulary in the Court Dialect*.

Starting in the 1850s, the problems of orthographic standardization were even more pronounced, as an increased number of missionaries ventured into new languages, and assigned

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[139] [unknown author, possibly Samuel W. Williams], "System of Orthography for Chinese Words," *Chinese Repository*, vol. 5, no. 1 (May, 1836), 12-21.

[140] William Jones suggested in 1786 that Greek, Sanskrit, and Latin shared common roots —the origins of the theory of Indo-European Languages. William Jones, "The Third Anniversary Discourse, on the Hindus, delivered 2d of February, 1786," in *The Works of Sir William Jones, vol. 1* (London: Printed for G. G. And J. Robinson, 1799), 19-34.

[141] Samuel Wells Williams, *An English and Chinese Vocabulary in the Court Dialect*, iv.

[142] ibid.

new phonetic values to letters, considering Jones' scheme to be insufficient. Instead of printing the Scriptures in Chinese characters, the missionaries after the Opium War had a clear aim to bring the alphabet—the metaphor for Christian civilization to the illiterate in their own tongues. Between 1851 and 1911, biblical teachings were published in close to twenty different speeches in China, as I will explain shortly.

For some missionaries, the Roman Alphabet was not the only choice to transcribe Chinese languages. In 1852, when missionary Romanization was still in its infancy for local speeches, missionaries in Shanghai voiced their dissatisfaction with the Roman Alphabet. The alien character of Roman letters was one of the concerns; but more notably, the Roman letters did not conform with Chinese habits of writing, i.e., vertical composition with a brush. In the words of Tarleton Perry Crawford, the missionaries "realiz[ed] the impossibility of expressing correctly all the various sounds of the dialect by means of our alphabet, and *[saw] its utter want of adaptation to the Chinese pen and habits of writing*."[143] The use of the Chinese brush was the biggest obstacle facing Romanization, and Tarleton P. Crawford attended to this problem immediately.

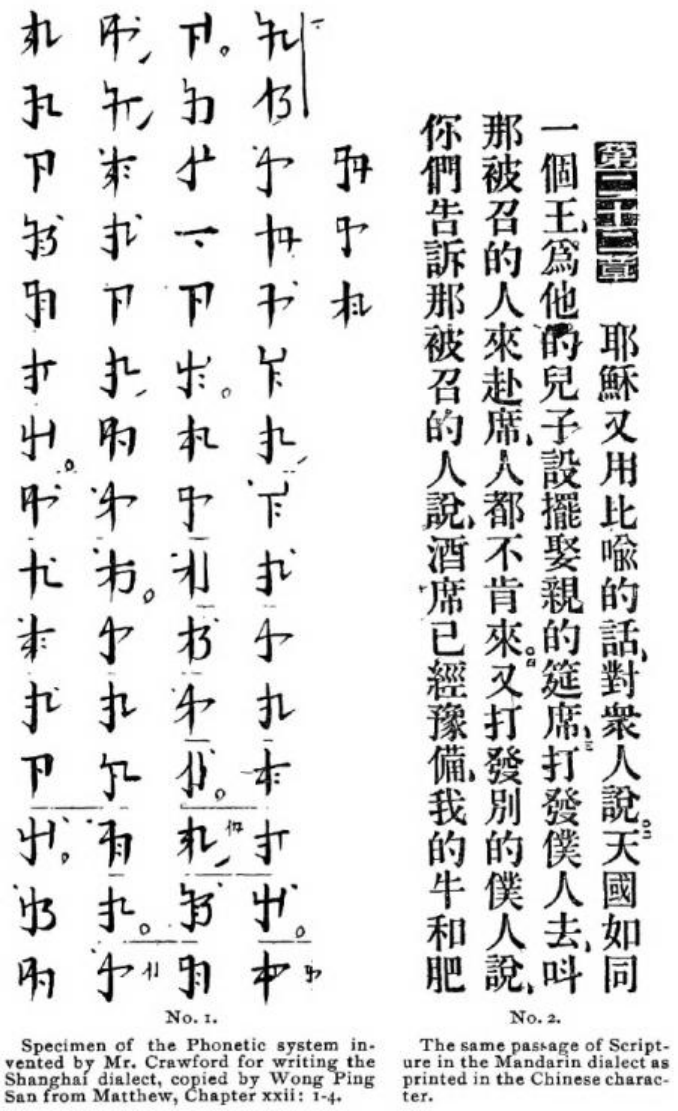
Born and raised in the US state of Kentucky, Crawford was appointed as a missionary to China by the Southern Baptist Convention, and he reached Shanghai with his wife Martha Foster Crawford in 1852, when the elder missionaries were trying to devise a phonetic system for Shanghainese. By then, the Chinese dictionaries published in different languages had already shown that the Chinese characters were pronounced through a combination of an initial and a final sound. Shanghai missionaries thus tried to create a system constructed on a simpler syllabic method that could designate a sign for initials and another sign for finals, instead of relying on the abundant letters of Roman Alphabet. Aware of the limitations of the Chinese brush,

[143] L. S. Foster, *Fifty Years in China: An Eventful Memoir of Tarleton Perry Crawford* (Nashville: Bayless-Fullen Company, 1909), 354-355. Emphasis mine.

missionaries were also keen to assimilate their system into the native culture of writing. Inspired by this work, Crawford started working on a system of his own, and "aided by a native teacher of excellent ear and penmanship," he invented a complete system without the tone marks. Each sound was written by a perpendicular line, on the left of which stood the initial, and on the right the final. According to Crawford's own notes, other missionaries started using his system as well, and a hundred to two hundred native Shanghainese were taught to read it in a few years. The first blow to his system was struck in 1863, when he was posted to Deng county in present-day Henan. He tried to apply his phonetic system to the local dialect in Deng county, but tone marks proved to be too difficult to manage.[144] It was only in the late 1880s, when Romanization was enjoying its heyday, that he returned to his invention, decided to incorporate the tones into the signs by way of showing them with hooks to the right or left, and presented it to the missionary community as an alternative to the Roman alphabet.[145] (Fig. 2.2)

[144] ibid., 357-359.

[145] T. P. Crawford, "Phonetic Symbols for Writing the Dialects of China," *Chinese Recorder*, vol. 19 (March, 1888), 109



No. 1.

Specimen of the Phonetic system invented by Mr. Crawford for writing the Shanghai dialect, copied by Wong Ping San from Matthew, Chapter xxii: 1-4.

第二十二章 耶穌又用比喻的話，對衆人說。天國如同一個王，爲他的兒子設擺娶親的筵席，打發僕人去，叫那被召的人來赴席，人都不肯來。又打發別的僕人說，你們告訴那被召的人說，酒席已經豫備，我的牛和肥

No. 2.

The same passage of Scripture in the Mandarin dialect as printed in the Chinese character.

Fig. 2.2 - Crawford's Syllabary[146]

Crawford did not leave a detailed explanation behind, so it is hard to understand the system's linguistic convenience. But even if it were perfect in every stroke, it is not difficult to see why it failed. In order to *print* the signs, new fonts were necessary along with new funds to cast them. Printing had never been easy for the missionaries. Even the Roman Alphabet, although in theory

[146] Foster, ibid., 361.

it facilitated the production and distribution of the Scriptures in local tongues, generated a plethora of problems. One big issue with the Roman Alphabet was its non-standard use. In spite of Samuel Williams' attention to the standardization of Jones' orthography for Chinese languages, missions were working independently of each other, and just like debates over the standardization of terminology (what was the correct translation of "God"? *xin* or *shangdi*?),[147] the Roman Alphabet was far from standard in the publications of the Scriptures in local tongues. The lack of consensus on the phonetic values of letters was symptomatic of the fragmented and often competing nature of the missions. At a more practical level, however, it posed financial and material difficulties for printing. As late as 1890, when there was still no consensus over Romanization, Hudson Taylor of the China Inland Mission noted the cost of matrices for special letters. In the Romanized system for Ningbo speech, for instance, there were four extra consonants designated by diacritic marks. Hudson remarked that the cost of the little type needed just for those four letters equalled the remainder of the font![148] Given the difficulties with the Roman Alphabet itself, a non-Roman phonetic system, no matter how attuned it was to the Chinese brush, was hopeless. Funds could not be secured even for the fonts of Karl Richard Lepsius' "Standard Alphabet," which the Prussian Egyptologist had devised as a uniform

[147] The debates about translation started in the 1840s, and continued at least into the 1870s. See, Samuel W. Williams, "Controversy Among the Protestant Missionaries on the ProperTranslation of the Words of God and Spirit into Chinese," in *The Bibliotheca Sacra, vol. 35*, edited by Edwards A. Park et al. (Andover: Warren F. Draper, 1878), 732-778.

[148] *Records of the General Conference of the Protestant Missionaries of China* (Shanghai: American Presbyterian Mission Press, 1890), 371.

European orthography for all languages in the world, despite Samuel Williams' personal interest in them.[149] And later in 1893, J. A. Silsby's shorthand for Shanghainese faced the same fate.[150]

Meanwhile, missionary Romanization had taken off. From the 1850s onward, thousands of publications came out of the missionary printing presses in Macao, Canton, Shanghai, local mission presses in other cities, and in some cases, Glasgow and Berlin. Languages spoken in the coastal stretch from Beijing to Guangdong, where missionary work was the densest, were Romanized one after another, and the Scriptures were printed with the funds from the British and Foreign Bible Society, China Inland Mission, and American Bible Society.[151] The first religious publication in Romanized speeches came out in Ningbo, a hub of missionary activities, in 1851. The New Testament in Ningbo was for the most part Romanized and published between 1851 and 1861.[152] (Fig. 2.3) In Zhejiang province, Jinhua (Kinhwa) was Romanized in 1866. Just north of Jinhua, the provincial capital Hangzhou's speech was printed in Roman letters in 1877. A little more than a hundred miles south of Ningbo, Taizhou's vernacular speech was also Romanized in 1880-81.

Shanghai, Guangdong, and Fujian were also fruitful areas for missionaries. In 1859, Shanghainese was Romanized. In 1892, Romanized Wenzhou was produced. China Inland Mission (CIM) was occupied with the Romanization of northern Mandarin in 1869, and

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[149] William Lobscheid, *English and Chinese Dictionary: with Punti and Mandarin Pronunciation* (Hong Kong: "Daily Press" Office, 1866), 88.

[150] John A. Silsby, "Phonetic Representation of Chinese Sounds," *Chinese Recorder*, vol. 24 (October, 1893), 472-479. There was also another phonetic system created by Adam Grainger through the use of native Chinese characters, but I have not been able to locate this source. *Records of the Second Triennial Meeting of the Educational Association of China* (Shanghai: American Presbyterian Mission, 1896), 145-146.

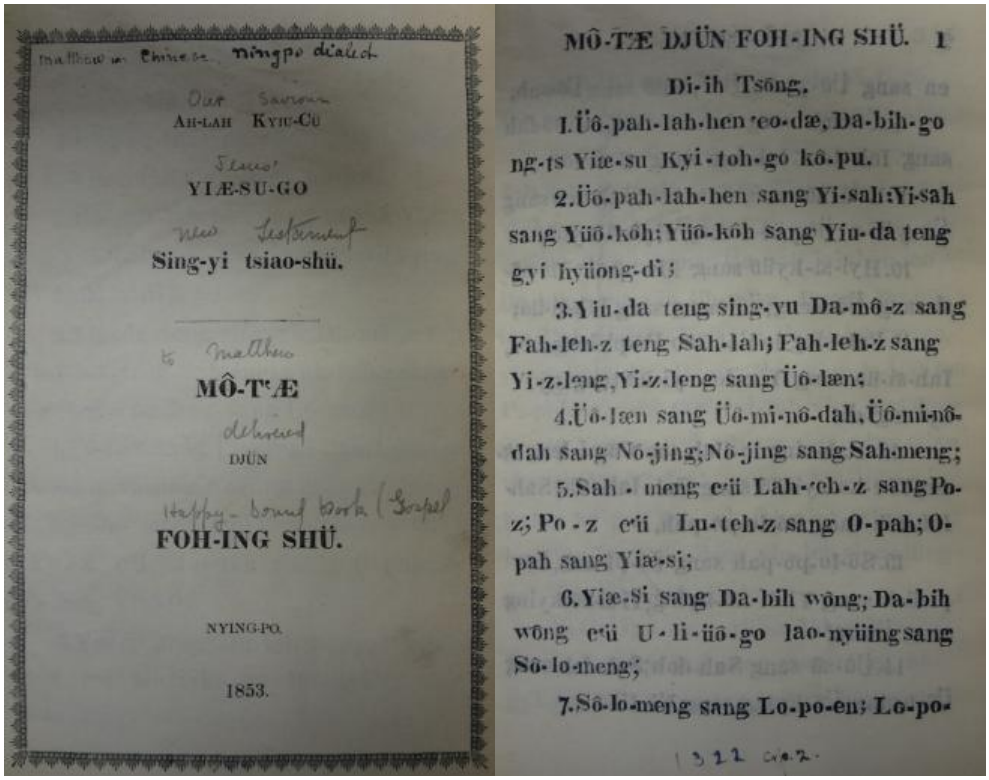
[151] John R. Hykes, *Translations of the Scriptures into the Languages of China and Her Dependencies* (New York: American Bible Society, 1916), 12-36.

[152] Marshall Broomhall, *The Chinese Empire: A General and Missionary Survey* (London: Morgan and Scott, China Inland Mission, 1907), 397.

spearheaded the publication of Romanized gospels in Nanjing Mandarin as well in 1870-71.[153] Hakka, the speakers of which were the main leaders of the Taiping Rebellion, was Romanized early in 1860 by German missionaries, and published first in Berlin. In 1877, the Gospel of Luke was made available in Shantou (Swatow). Gospel of Mark in colloquial Cantonese made its debut in 1892. Sanjiang (Sankiang) in Lianzhou, northwest of Guangdong, was Romanized in 1904. In Fujian, Amoy was the first to be printed in Roman letters. In 1852, it came in the form of the Gospel of John. Fuzhou was Romanized in 1881. Shaowu in Fujian was Romanized in 1891. Putian (hinghwa), just north of Amoy, started publication in the Roman Alphabet in 1892; Jianning (kienning) in 1895; Jianyang in 1898. In addition, Romanized Hainanese was also published in 1891. Zhongjia, a Thai-related language spoken by what was estimated to be a million inhabitants in Guizhou, was Romanized in 1904. In the following years, the language of the Miao minority people in the southwest was also phoneticized.[154]

[153] ibid., 389. John Hykes gives 1869 as the date of Romanizing the Nanjing dialect, and claims that it was made by Maria Jane Taylor. Hykes, ibid.

[154] The information is taken from Broomhall, ibid., and John R. Hykes, ibid.


matthew in Chinese. Ningpo dialect

Our Saviour
AH-LAH KYIU-CÜ

Jesus'
YIÆ-SU-GO

New Testament
Sing-yi tsiao-shü.

to Matthew
MÔ-T'Æ
delivered
DJÜN

Happy-Sound Book (Gospel)
FOH-ING SHÜ.

NYING-PO.

1853.

MÔ-TÆ DJÜN FOH-ING SHÜ. 1

Di-ih Tsông.

1.Üô-pah-lah-hen 'eo-dæ, Da-bih-gong-ts Yiæ-su Kyi-toh-go kô-pu.

2.Üo-pah-lah-hen sang Yi-sah:Yi-sah sang Yüô-kôh:Yüô-kôh sang Yiu-da teng gyi hyüong-dï;

3.Yiu-da teng sing-vu Da-mô-z sang Fah-leh-z teng Sah-lah; Fah-leh-z sang Yi-z-leng,Yi-z-leng sang Üô-læn:

4.Üô-læn sang Üô-mi-nô-dah,Üô-mi-nô-dah sang Nô-jing;Nô-jing sang Sah-meng;

5.Sah-meng c'ü Lah-'eh-z sang Po-z; Po-z c'ü Lu-teh-z sang O-pah; O-pah sang Yiæ-si;

6.Yiæ-Si sang Da-bih wông; Da-bih wông c'ü U-li-üô-go lao-nyüing sang Sô-lo-meng;

7.Sô-lo-meng sang Lo-po-en; Lo-po-

1322 c.2.

Fig. 2.3 - "The Book of Happy Sounds" - Gospel of Matthew in Ningbo dialect, 1853
(Courtesy of the American Bible Society)

The quick escalation in the number of Romanized languages was good news for evangelization, but bad for standardization. In 1874, Williams was still complaining about the confusion generated by the diversity of spellings for the same character.[155] By the 1870s, the impossibility of devising one common alphabet for all languages in China was clear. The linguistically rich environment in the Southeast was particularly problematic. As one missionary from Fujian put it very graphically:

> But what a Babel of brogues, and dialects there is among those wild mountains! A native can hardly pass the limits of his own village but his speech will bewray him. The tones are the most unstable elements. Consonants, and even vowels have limits and laws of mutations, and though these are somewhat vague they cannot be wholly disregarded. But the tones seem utterly lawless. They shoot up to the sky, they plunge into the bowels of the earth, they stiffen straight out, they

[155] Samuel W. Williams, *A Syllabic Dictionary of the Chinese Language*, xix.

> double up and twist about; they sing, cry, whine, froan, scold, plead; here, are musically plaintive; there, are gruff and overbearing.[156]

The "lawless" sounds of the southeast aside, Mandarin could still be represented, the missionaries believed, with one alphabet despite regional differences. In other words, even if Amoy, Cantonese, and Mandarin could not be written with the same signs, Mandarin spoken in Beijing, Shandong, Nanjing, Sichuan, Hubei, and other regions could theoretically be unified with one single orthography. From 1870 to the turn of the century, the hitherto separate missionary societies unified in an effort to devise one single alphabet capable of representing all vernacular Mandarin tongues. The major instigator for this sudden coalition among all missionaries was in fact a non-missionary Romanization project, which turned out to be the major contender to all Romanizations: Wade's Romanization.

III. Thomas Francis Wade and the Search for a Standard Alphabet

Thomas Francis Wade's Romanization, first published in 1859 in *Peking Syllabary*, was not part of the missionary movement. It might even be speculated that Wade invented his system partly as a response to the missionaries' search for a universal alphabet. His diplomatic vision, in general, did not overlap with the demands of the religious missions. First dispatched to China in 1842, Wade started learning Cantonese and acted as an official interpreter until becoming a part of the official British diplomatic corps in 1845. Serving in Nanjing, Hong Kong, and Beijing, he was instrumental in the signing of the Treaty of Tianjin in 1858, and the Chefoo (Yantai) Convention in 1876, which opened new treaty ports in China. Knighted in 1875, he retired in

[156] J. E. Walker, "Shao-wu in Fuh-Kien; A Country Station," *Chinese Recorder*, vol. 9 (Sept.-Oct., 1878), 349.

1883 and became the first professor of Chinese at Cambridge in 1888.[157] After he died in 1895, his Romanization became the international standard and was in use until the PRC's *pinyin* became widely accepted at the end of the twentieth century.

As a pragmatic statesman, Wade was looking for a practical Romanization scheme that would enable the foreign speakers of Chinese to converse with officials in the official medium. The choice of Beijing Mandarin, or as he put it, "Peking Dialect," reflected linguistic realpolitik more than anything else. "It is forty years," wrote Wade in his preface, "since Dr. Morrison predicted that [the Dialect of Peking] would corrupt the general language of the Empire, and we make bold to say that this prediction has been to a great extent fulfilled."[158] Thomas Taylor Meadows, an interpreter at the British Consulate in Canton, addressed this problem in his account of Guangdong in 1847. 74 out of 231 officials in Guangdong were from Beijing, and 15 of them were coming from other regions of the Zhili province, of which Beijing was one part. Meadows noted that one half of all the officials from different ranks that he spoke with conversed in "pure Pekin colloquial" and the language of the others approached it, but "*not one* used the pronunciation given as the mandarin by Morrison, and by Mr. Medhurst, in their dictionaries, and as the court dialect by Mr. Williams (with a different orthography), in his vocabulary."[159] Missionary orthographies, in other words, did not meet the need for Beijing Mandarin. Meadows was indeed the first to point out the inconvenience of William Jones'

[157] For an overview of Wade's diplomatic career, see, James C. Cooley, Jr. *T. F. Wade in China: A Pioneer in Global Diplomacy, 1842-1882* (Leiden: Brill, 1981). Also, James L. Hevia, "An Imperial Nomad and the Great Game: Thomas Francis Wade in China," *Late Imperial China*, vol. 16, no. 2 (Dec., 1995), 1-22.
[158] Thomas Francis Wade, *The Peking Syllabary, Being a collection of the characters representing the Dialect of Peking; Arranged after a new orthography in syllabic classes, according to the four tones; designed to accompany the Hsin Ching Lu, or Book of Experiments* (Hongkong, 1859), no page numbers, preface to *Hsin Ching Lu*.
[159] Thomas Taylor Meadows, *Desultory Notes on the Government and People of China* (London: Wm. H. Allen and Co., 1847), 44. Emphasis in the original.

orthography for Beijing Mandarin, and thus he invented his own orthography in 1847, which preceded Wade's.[160]

From a practical perspective, Wade's Romanization was just one out of many Romanization schemes for vernaculars, but the difference between his orthography and missionary orthographies was not simply a technical issue. Wade and the missionaries had conflicts of interest, and when he openly advocated against missionary activities in China in 1868, coincidentally overlapping with the publication of his popular book *Self-Taught Language Lessons*, his Romanization came under attack by the missionaries. Wade's objective was to keep the international order as little disturbed as possible; and *Peking Syllabary* reflected his attitude to international politics—one standard transcription was all that was necessary to ensure unambiguous communication between foreigners and Chinese officials. He never endorsed the British and American missionaries' radical project to Romanize all languages and dialects, nor did he ever mention studying the missionary dictionaries, except one by the Portuguese missionary Joaquim Affonso Gonçalves, *Diccionario China-Portuguez*, published in Macao in 1833. According to his own narrative, Wade started working on Beijing Mandarin in 1847 in Canton with Ying Longtian 應龍田 (? - 1861), who may have been a Manchu bannerman, and the source he consulted was Gonçalves' *Diccionario*. Finding Gonçalves' tones inaccurate, Ying Longtian volunteered to phonetically rearrange the dictionary.[161] When Wade finalized his own

[160] Meadows, ibid., 55-58.

[161] Elisbeth Kaske, *The Politics of Language in Chinese Education* (Leiden: Brill, 2008), 69. It is hard to tell to what extent Wade's Romanization was informed by the Chinese textbook for learning the Manchu language, *Qingwen zhiyao* 清文指要 (*manju gisun-i oyonggo jorin-i bithe*). For a speculative account, which Kaske's discussion of the subject seems to verify, see: Pär Cassel, "'Spelling Like a State': Some Thoughts on the Manchu Origins of the Wade-Giles System," *Central Asiatic Journal*, vol. 58, no. 1-2, The Manchus and Tartar Identity in the Chinese Empire (2015), 37-47.

orthography in 1859, he followed in Ying's linguistic and Meadows' diplomatic footsteps, and published it as *Peking Syllabary*.

The years during which Wade conceived and published *Peking Syllabary* bear significance, for it coincided with the Taiping Rebellion (1850-1864), one of the biggest and bloodiest civil wars in world history. The ubiquitous role of Christianity as well as the ambiguous role of missionaries in it cast doubt on the future alliance between the Christian mission and foreign diplomacy concerning China.[162] The absence of missionaries in Wade's narrative might have signalled his unease with the missionary enterprise, which persisted even after the Taiping Rebellion came to an end.

Wade took precautions against missionary influence as soon as he could. His first diplomatic action against them was in 1868, when the Tianjin Treaty of 1858 was going through revisions. Article eight of Tianjin Treaty stated that the missionaries were entitled to the protection of the Chinese authorities, and that as long as they did not offend the laws, their missions could not be interfered with. When the treaty was revised in ten years, the Chambers of Commerce demanded more concessions on trade, and on April 30, 1868, William Lockart from the London Missionary Society claimed that the British missionaries should also be given the right to purchase land and reside anywhere in China. But Thomas Wade was not at all pleased with the demand. In December 1868, he proposed a change to this article:

> If this privilege be conceded to the merchant it will, of course, accrue equally to the Missionary; but I believe their cause will, for a time, be better without it; and I am entirely opposed to any privileges being conceded distinctively to the missionary body. Lord Elgin had serious doubts about the expediency of inserting an Article upon the subject of the Christian Religion at all in the Treaty, his belief, if I am not mistaken, being that, while the enforcement of Treaty stipulations affecting the propagation of Christianity was offensive to our feelings and outraging to the feelings of any nation which might be compelled to accept such conditions, the cause of Christianity itself would be advanced by nothing so little as political support. … But to one and all of the class [literati] the appearance in China of Christian Missionaries, backed by the power

[162] Stephen Platt, *Autumn in the Heavenly Kingdom: China, the West, and the Epic Story of the Taiping Civil War* (New York: Vintage Books, 2012).

> or prestige of their respective governments, must be simply as offensive as an invasion, similarly supported, of Buddhist or Confucian teachers would be to ourselves.[163]

Questioning not only the geography of evangelization, but also the expediency of including the propagation of Christianity in the treaty struck at the heart of missionary politics. In a critique of Wade's view of Christian missions, John Shaw Burdon, a British missionary, noted that "[i]n a word, Mr. Wade wants accomplished schoolmasters and professors rather than preachers of religion, and scientific missions with a Christian tendency rather than Christian missions with an educational tendency."[164] Wade's Roman letters were his politics in material form —they were deliberately unlike the missionaries'. Wade's popularity steadily increased after the publication of *Self-Taught Language Lessons* in 1867, and his Romanization eventually culminated into the Western standard of transcribing Chinese. Missionary Romanization after 1867 was in many ways a response to Wade's Peking Syllabary.

Missionaries were evangelical vernacularists; and for them, each vernacular speech deserved equal representation. They rejected Wade's Romanization not simply because of his anti-missionary remarks, but because it killed evangelization in local tongues. Wade's Romanization was by definition unadaptable to any Mandarin-spoken region in the southern and central Chinese provinces, because it was not capable of representing the fifth tone (*rusheng*), also known as the "checked tone" or "entering tone." Unheard in Beijing Mandarin which only had four tones, the fifth tone was a constitutive part of speech in other regions. The fifth tone designated a glottal stop, and the missionaries preferred using the letter "h" at the end of a word to designate it. Wade, on the other hand, was using "h" as an integral part of his four-tone Beijing

[163] Timothy Richard, "The Political Status of Missionaries and Native Christians in China," *Chinese Recorder*, vol. 16 (March-April, 1885), 96.

[164] J. S. Burdon, "Mr. Wade's Views on the Missionary Question," *Chinese Recorder*, vol. 4 (1871-72), 249.

pronunciation. Wade's *shih*, for instance, could stand for lion 獅 (*shih* in the first tone), stone 石 (*shih* in the second tone), history 史 (*shih* in the third tone), or city 市 (*shih* in the fourth tone).[165] When the use of "h" was not reserved for the fifth tone, it only served confusion for the southern and western vernaculars. China Inland Mission openly challenged Wade in 1867 by devising a new orthography, using "h" only for the fifth tone. In the following decades, the CIM's orthography was deliberately used by other missionaries; and even after Wade's Romanization *de facto* became the standard in international communication and literature, missionaries still continued using it. Most famously, the Mathews' Dictionary of 1931 used CIM's along with Wade's Romanization.[166]

From the 1870s onwards, while diverse vernacular Romanizations were under way, some missionaries decided to disregard Wade altogether. John Chalmers from the London Missionary Society, author of English-Cantonese dictionaries, suggested that Morrison or Williams' Romanization should be universally applied to the missionary enterprise, "leaving others to follow Wade."[167] The lack of a standard system was diminishing the missionaries' chances of ever superseding Wade, but reaching a consensus was not a walk in the park. If Morrison or Williams' Romanization were adopted, what would happen to the CIM's Romanization, which was already used to print the Scriptures in vernacular tongues?

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[165] Wade, *Peking Syllabary*, 55.

[166] Frederick W. Baller, *Mandarin Primer* (Shanghai: China Inland Mission and American Presbyterian Mission Press, 1894), v; Frederick W. Baller, *An Analytical Chinese-English Dictionary Compiled for the China Inland Mission* (Shanghai: China Inland Mission and American Presbyterian Mission, 1900). I have not been able to locate the original publication of Robert Henry Mathews' *A Chinese-English Dictionary Compiled for the China Inland Mission* (Shanghai: China Inland Mission and Presbyterian Mission Press, 1931), but it is possible that he built on Baller's dictionary.

[167] John Chalmers, "Correspondence: Orthography of Chinese Words," *Chinese Recorder*, vol. 7 (Nov.-Dec., 1876), 443; *Records of the Second Triennial Meeting*, 143.

The issue was addressed in 1877 in the General Conference of Protestant Missionaries in China, convened in Shanghai, and a committee was formed to arrange a uniform system for representing Chinese sounds with Roman Letters, consisting of vernacularists such as the compiler of the Amoy dictionary Carstairs Douglas, the Shanghainese translator of the Scriptures Samuel I. J. Schereschewsky, the author of Shanghainese grammar books Joseph Edkins, the lexicographer of Cantonese John Chalmers, and others.[168] Yet, there was not any considerable progress until the next General Conference in 1890.[169] When the issue was raised again, some of the missionaries from Western China voiced their opinions against Romanization. Among the Hakka, for instance, a missionary noted that it was easier for the native people to learn the Bible through Chinese characters written colloquially. Another missionary from Sichuan echoed this observation and reported that "[i]f one knew no Chinese characters and wished only to learn to read the Bible, perhaps the Romanized might be the easiest, but most know some elementary expressions from the classical and from the Mandarin (colloquial) in Chinese characters."[170] The majority of the missionaries, however, were in favor of Romanization, and by the end of the conference, a permanent Committee on Mandarin Romanization was formed under the Education Association of China.[171]

During the next decade, the missionaries continued to lose ground to Wade's Romanization. Wade's reputation had increased considerably with his appointment as the Cambridge Sinologist, and his contacts within diplomatic circles were certainly not against the adoption of his

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[168] *Records of the General Conference of the Protestant Missionaries of China* (Shanghai: Presbyterian Mission Press, 1877), 17-18. John Shaw Burdon, Chauncey Goodrich, and R. Lechler were the other committee members.

[169] One exception was the missionaries in Shanghai who devised the Union System of Romanization in 1889. J. A. Silsby, "Shanghai Romanization," *Chinese Recorder*, vol. 34 (August, 1903), 401-402.

[170] *General conference* (1890), 94-95.

[171] J. A. Silsby, "Mandarin Romanization," *Chinese Recorder* 34 (August, 1903), 347.

Romanization, which, even in the words of the missionaries, "represent[ed] Pekingese so admirably."[172] By the 1890s, especially after Herbert Giles' update, Wade-Giles was used in consulates, Foreign Customs, and predominantly in the postal service.[173] Despite the wide use of Wade-Giles outside of China and for international communications, however, Romanization in China was still unsettled. Even Giles had combined Wade's Romanization with missionary Romanizations in his famed dictionary, and accompanied each character with its pronunciations in Cantonese, Hakka, Fuzhou, Wenzhou, Ningbo, Beijing, mid-China, Yangzhou, and Sichuan "dialects," and even showed the fifth-tone for southern Mandarin speeches.[174] In 1904, after more than a decade of work, the Committee on Mandarin Romanization finally published *The Standard System of Mandarin Romanization*.

Standard System fixed the phonetic values of letters through a mix of Wade, Giles, Williams, CIM, Mateer, and Baller's Romanizations. The Standard System was potentially revolutionary, for it had the capacity to put an end to almost a hundred years of debates in standardizing Romanization. Immediately followed a primer, the gospels of Matthew and Mark, and *Pu Tung Wen Bao*, a monthly periodical published in Standard Romanized Mandarin.[175] The central idea of the Standard was to use the same letters for different phonetic values. For instance, 江 (pinyin, *jiang*) was transcribed as *giang* in which the first letter *g* could accommodate the phonetic value of the northern "djiang" and the southern "kiang." In some cases, two spellings were provided

[172] Baller, *Mandarin Primer,* iv. Yet, Baller went with CIM's Romanization in his primer, and noted that the CIM was better suited for Mandarin speakers in Western and Central China.

[173] Lane J. Harris, "'A Lasting Boon to All': A Note on the Postal Romanization of Place Names, 1896-1949," *Twentieth-Century China*, vol. 34, no. 1 (Nov., 2008), 98-99.

[174] Herbert A. Giles, *A Chinese-English Dictionary* (Shanghai, Hongkong, Singapore, and Yokohama: Kelly and Walsh, 1912), xii. He also added Korean, Japanese, and "Annamese" into his list of pronunciations.

[175] J. A. Silsby, "Reform in Etiquette Called For," *Chinese Recorder*, vol. 36 (March, 1905), 144. I was unable the locate this periodical.

for one character: 希 and 西 were both pronounced as *hsi* (pinyin, *xi*) in the Beijing dialect, but the latter was pronounced as *si* in the Nanjing dialect. The system retained both pronunciations.[176] From 1904 to 1907, the most-purchased book of the Educational Association was *Standard System*.[177]

Its success in the eyes of the missionaries aside, *Standard System* in fact became obsolete almost as soon as it came out of the press —not because Wade-Giles reigned supreme, but because Chinese scholars repurposed the phoneticization movement, and championed it in a very short period of time. After Lu Zhuangzhang, Wang Bingyao, Cai Xiyong, and Shen Xue, dozens more walked into the spotlight, and with the intellectual push of major figures, such as Tan Sitong, Liang Qichao, and Zhang Taiyan, a Chinese-led phoneticization movement rebuilt a phonetic infrastructure for China, erasing the nineteenth-century traces of the missionaries. During the last two decades of the Qing, while missionaries were trying to devise *Standard System*, their activities were shadowed by the overwhelming power of the Chinese phoneticization movement. When the empire came to an end in 1911, one of the first actions of the Republic was to consolidate the decentralized energy of phoneticization under one roof, and give it an institutional power to invent the first official National Phonetic Alphabet. For the time being, missionaries stepped off the stage.

Conclusion

Close to a century of Romanization in China was directly linked to industrializing technologies of print and the inclusion of China into a globalizing economic, bureaucratic, and

[176] ibid., 145.

[177] "Our Most Popular Books," *Chinese Recorder*, vol. 38 (Aug., 1907), 437.

linguistic order. Romanization in China was never a unified movement, as missionaries and diplomats had different political concerns embedded in the letters of the Roman Alphabet. Neither the proliferation of Romanized biblical texts nor Wade's auxiliary alphabet had an immediate effect on the information order within the Chinese society itself until the 1890s. Yet, when the infrastructural constraints and the political economy of information put pressure on the Chinese reformers to initiate a native reform movement at the turn of the century, missionary Romanizations became a convenient reference point, and missionaries proved themselves as helpful assistants who aided some of the Chinese reformists in devising non-Roman scripts. In fact, after the promulgation of the Chinese National Phonetic Alphabet (NPA) in 1918, missionaries re-introduced themselves as partners who were willing to put their printing presses to use once again to publish in the NPA, and continue evangelizing while aiding the national literacy campaign. Even though the missionaries were not the primary instigators of script reform in China, they were an integral part of the reform movement until the mid-1920s, as I will describe in the next chapter.

More significant than the missionaries' historical role in the Republican era was the new epistemology of writing that nineteenth-century phonetic scripts introduced to China. As an infrastructural technology that generated possibilities and limitations in imagining the role of language and information in modernization, phonetic scripts offered new ways of reckoning communicative efficiency while raising a question about vernacular linguistic representation in an empire where written communication was hitherto conspicuously non-phonocentric. When the Chinese reformers embarked on the phoneticization project, and began inventing a phonetic script that signified China's sovereign status in an internationalizing world order, they encountered the same problems that tormented the missionaries throughout the nineteenth

century. If China were to have an alphabet, what speech was it going to represent? Separate voices within the Chinese reformist community echoed the tension between Wade and the missionaries concerning the problem of linguistic representation. This tension will the subject of the following pages.

Chapter 3

Alphabet Democracy? Grammatological Sovereignty and Vernacular Activisms

Language is a political affair before it is an affair for linguistics.
--Gilles Deleuze and Felix Guattari

"Politics and the English Language" is redundant.
--David Foster Wallace

In early twentieth century, the problem was not that China lacked a phonetic system; it was that it had too many. Lu Zhuangzhang's allusively pseudo-Roman syllabary for Min speeches in Fujian, Cai Xiyong's short hand for Mandarin, Wang Zhao's *kana*-induced Mandarin syllabary, Lao Naixuan's for southern vernacular speeches, Tian Tingjun's number-based syllabary, and dozens more. The upsurge of phonetic writing systems since the 1890s posed a grave problem for the modern nation-state's penchant for centralization and standardization. The number of phonetic writing systems with different graphic properties was too high, and they stood for too many speeches. Even though *guanhua*, commonly translated as Mandarin, was the "official language," it varied greatly from one locale to the other; and apart from the vernacular differences of Mandarin, there were also mutually incomprehensible languages spoken throughout China, especially in the coastal region from Shandong to Guangdong, as I have explained in the previous chapter. Like the missionary Romanizations, the phonetic scripts invented at the turn of the century thus represented a variety of speeches, but unlike the missionaries' Roman Alphabet, they were conspicuously non-Roman.

The graphics of phonetic scripts as well as the speeches that they stood for is the subject of this chapter. As I have argued in the first chapter, the Chinese code-switch was part of a global history of communication. In this chapter, I would further like to suggest that a phonetic Chinese script was not only a medium to encode language for communicative and technological purposes,

but also an index for grammatological sovereignty and an emerging national identity. In my reading of the turn-of-the-century Chinese script reforms, I thus follow David Damrosch's remarks on "grammatological sovereignty" as a literary culture's attempt to articulate a writing system that is capable of adapting new systems of knowledge into a sovereign body. In contrast to Damrosch, however, who uses "sovereignty" as a timeless phenomenon that can be applied even to medieval Icelandic literary culture, I would like to suggest that the global simultaneity of twentieth-century code-switches should be interpreted as a product of modern historical conditions, in which the invention of grammatological sovereignty was a powerful act to assert national independence in an internationalizing linguistic and informational order.[178]

In 1912, the newly founded Republic of China's Minister of Education Cai Yuanpei summoned representatives from all provinces to join the Conference for the Unification of Pronunciation to be held in February, 1913. The purpose of the conference was to decide on a common script and to unify the pronunciations of Chinese characters. In other words, the aim was to determine the pronunciation for what was to become a "national language (*guoyu*)." Given the linguistic diversity extant in China, which had been a major issue for the missionaries, how did the conference select one common script? And after the selection, what awaited the future of linguistic diversity in China?

The origins of the linguistic problems that preoccupy China even in the twenty-first century can be traced back to this late nineteenth-century moment, when the technological, industrial, and bureaucratic transformations and the alphabetical infrastructure that surrounded the world through wires demanded a phonetic writing system. Chinese alphabets and syllabaries mushroomed during this period. But as they did so, much like the missionary alphabets, they

[178] David Damrosch, "Scriptworlds: Writing Systems and the Formation of World Literature," *Modern Language Quarterly* 68:2 (June, 2007), 195-219.

were representing vernacular tongues, not an unborn national language. In other words, there were vernacular speeches, *baihua*s in the plural, written phonetically. This proliferation of scripts and languages posed an urgent need for the centralizing state to favor one speech over others, and choose one script to represent it; for without it, national communication was extraordinarily cumbersome. In other words, language politics followed the infrastructural condition. *First* came the phonetic scripts and the simultaneous search for a more efficient management of labor time in the production, transmission, and consumption of information and knowledge, *then* came a national language. To put it succinctly, national language was an *aftereffect* of information infrastructures and the political economy of mental and clerical labor.

The Conference for the Unification of Pronunciation agreed upon the intellectual giant Zhang Taiyan's (1868-1936) phonetic script, which he had first proposed in 1907. When the government finally promulgated it as the National Phonetic Alphabet (*zhuyin zimu*, NPA) that faithfully represented "national pronunciation" in 1918, Li Jinxi, the chronicler of the Chinese national language movement, summarized the reasons for the government's action in the following terms. The alphabet was not only going to "double the progress with half the labor" in education, i.e., increase efficiency in mental labor, but also provide a final solution to the problem of the telegraphic code, which in the words of Li could be fatal:

> Suppose there is an accident to the permanent way, or to a bridge on the railway, where rescue must be immediate else lives may be lost. In sending a telegram to the next station to stop a train, time is of the utmost importance, for a minute, or even a second's delay may involve untold lives and property. Who can estimate the amount of loss that might accrue from the old way of sending a telegram?

On the Beijing-Hankou Railway, French was the dominant language of the telegraph, and on the Beijing-Mukden Railway, it was English. The same problem ensued in flag-signaling, adopted by the military and naval forces. In short, the use of a common phonetic script with a common

language was the most practical solution to these pressing issues. As Li Jinxi succinctly put it, "Circumstances made it necessary, and it simply had to be made and promulgated."[179]

Circumstances had indeed made it necessary, but its making and promulgation was far from simple. The material need for an alphabet generated problems that up to this day haunt the linguistic landscape of China. Even if the alphabet was an infrastructural and political economic necessity, and an index for national sovereignty, the speech it was supposed to represent was undecided at best. Under scrutiny in this chapter is the period from when "circumstances made it necessary" to "it had to be made and promulgated," roughly from the 1890s to 1920s. This period was an era of what I would like to call "multilingual vernacularism," rarely mentioned in the literature. I would like to suggest that despite the colonial imposition of a global alphabetical infrastructure, Chinese vernacular scholars from different regions actively employed this infrastructure for their own political purposes. At a time when *baihua* publications, texts that are closer to vernacular speech and written in Chinese characters, were also slowly making headway into the market, phonetic vernacularism showed itself as an even more radical movement, bringing with it the tension between monolingual and multilingual imaginings of the nation-state. The new phonetic information infrastructure was an opportunity for multilingual vernacularism.

My use of the term "vernacular" needs elaboration. Victor Mair suggested the use of "topolects" to refer to diverse linguistic groups in China.[180] Min topolect, for instance, stands for the language and dialects spoken in Fujian province in the southeast. While I understand Mair's suggestion, I find it hard to distinguish a topolect from a language. If language is a political affair

[179] Jinxi Li, *Chinese Phonetic System and Language*, trans. Alex Mackenzie (Shanghai: Commercial Press, 1922), 39-40. In the original: 大勢所迫不能不制定頒行, in Jinxi Li, *Guoyuxue jiangyi* (Shanghai: Commercial Press, 1919), 28.

[180] Victor Mair, "Language and Script," in *The Columbia History of Chinese Literature*, ed. Victor Mair (New York: Columbia University Press, 2001), 19-57.

before a grammatical one, as Deleuze reminds us, then what makes Min a "topolect" and not a "language"? The use of "topolect," it seems to me, instead of "language" is also a political affair, for if the "topolects" under consideration had their own nation-states, they would surely be called "languages" —just like the Turkic "topolects" of Azeri, Kyrgyz, Kazakh, and others, which, given their national contexts, are defined as distinct languages, despite their varying degrees of mutual intelligibility.

Because of the challenge to make a normative distinction between language and topolect I adopt the term "vernaculars," with caution, to refer to regional languages and dialects in China. Shang Wei has recently demonstrated that the history of Chinese vernaculars are comparable neither to a European nor a South Asian model, for the power of a common writing system curtailed the use of regional languages and dialects in imperial China; they had "no formal role in administration and [made] minimal entrance into writing."[181] I would like to add to Shang's analysis that when phonetic scripts became a central component of late-Qing modernization, the historical condition of disadvantaged vernaculars played out a distinct role: vernaculars were neither markers of citizenship as in Europe nor of already existing literary vernacular traditions as in South Asia, but of regional identities that for the first time in Chinese history could ally with alphabetical infrastructures and ask for co-existence with a nationally defined language together with equal phonetic representation. The alphabet, in other words, was a tool of empowerment. During the early years of the Republic, this possibility was denied to multilingual vernacularists by May Fourth radicals.[182] Vernaculars in the plural were forced to obey one vernacular only, *baihua*. *Primus inter pares.*

[181] Shang Wei, "Rethinking the issue of vernaculars in Early Modern China," in *Rethinking East Asian Languages, Vernaculars, and Literacies, 1000-1919*, ed. Benjamin Elman (Leiden; Boston: Brill, 2014), 294.

[182] Shang, ibid., 295.

It is the socio-technical dimensions of phoneticization, the diverse alliances between humans and phonetic infrastructures, that I examine in this chapter. "Alphabet Democracy" refers to the possibilities of vernacular justice that phonetic infrastructures enabled as well as the limits they imposed.[183] The alphabetical infrastructure, on the one hand, was employed during the Republican era and later under the PRC as a powerful instrument to impose one spoken language in China, and discipline, suppress or eliminate the others. On the other hand, late-Qing vernacular scholars used the linguistic infrastructure of the alphabet to give voice and life to their own linguistic communities, to energize their speeches. Wang Bingyao's demand for the representation of Cantonese, Li Jiesan's for that of Min, and Lao Naixuan's for Suzhou and other southern vernaculars were political positions to safeguard linguistic diversity within a rapidly modernizing China that sought one national language. Multilingual vernacularism, I contend, was the humanistic counterpart to the homogenizing and assimilationist tendency of the nationally appropriated information and linguistic infrastructure.

The first section examines how Chinese reformers appropriated the alphabetical infrastructure for their own purposes, and reconfigured multilingual vernacularism, eliminating the missionaries' overt evangelistic core. In this section, I would like to point out that the graphic interface of phonetic scripts was at least as important as the language politics that the scripts represented. From Lu Zhuangzhang's script in 1892 to the Conference for the Unification of Pronunciation in 1913, dozens of script proposals were published; remarkably, only a minority of them were based on Roman letters. With a rising anti-colonial consciousness and an increased search for national essence (*guocui*) after the humiliating defeat in the Sino-Japanese War (1894-95), many of the reformers chose to invent syllabaries, i.e., initials and finals, and decided to do

[183] The title of this chapter is a reference to Timothy Mitchell, *Carbon Democracy: Political Power in the Age of Oil* (London, New York: Verso Books, 2011).

so in a notably non-Roman way. The first script to become the National Phonetic Alphabet was one of many scripts that were nativist in their graphic composition. The only challenge to nativism and the use of indigenous syllabaries came from the anarcho-Esperantists in France, who radically called for the replacement of Chinese by Esperanto written in the Roman alphabet. The National Phonetic Alphabet was in fact originally invented by Zhang Taiyan as a response to anarcho-Esperantism. Through explaining the intertwined politics of vernacularism and graphic interfaces, this section suggests that even if the problem of one common alphabet was temporarily solved in the Conference in 1913, that of languages was still far from resolution.

The second section examines the immediate years after the promulgation of the NPA in 1918. Despite the scientific rigor and dynamism of the May Fourth Movement, the enthusiasm of the reformers was curbed by the government's organizational inefficiency and lack of funds. This is when the missionaries entered the scene again (not that they had ever left), and handled the promotion of the NPA for the government. The missionaries and Chinese reformers were in very close contact until the late 1920s when the movement started to lose fuel due to linguistic differences coupled with financial constraints. It was only in 1930, when the government repurposed the NPA as an essential component of anti-communist politics that the missionaries faded out of the linguistic scene. Until then, they were an integral part of the history of Chinese phoneticization and vernacular activism—a part that has been largely forgotten in historiography.

Vernacular activism did not die easily. As the seventh and eighth chapters will show, in the 1930s, the Chinese Communist Party mobilized the centripetal forces of vernacular linguistic communities, and imported the USSR's internationalist Latin Alphabet as the savior of languages under threat by the party-state's monolingual agenda. I would like to suggest that from missionary evangelism to communist vernacular activism, phonetic scripts in China bear witness

to a long history of language justice. The politics of phonetic script that started in the nineteenth century was nothing less than the politics of linguistic life; and the eventual choice of one phonetic script for one national language crippled the lives of other languages in China. Starting with this chapter, my purpose is to show that Life could have been different.

I. Vernacular Activists and Graphic Interfaces

When infrastructural requirements pressed upon the Chinese reformers, missionary works turned out to be convenient reference points, but the majority of reformers stepped away from the Roman alphabet. Lu Zhuangzhang, for instance, was himself involved in the compilation of one of the missionary dictionaries —John MacGowan's *English and Chinese Dictionary of the Amoy Dialect*, printed in 1883.[184] Lu was not a stranger to alphabets, but curiously enough, in his proposal to Romanize Amoy and other dialects of Min (Quanzhou, Fuzhou, Swatow, and others), he undertook the effort to invent pseudo-Roman signs rather than directly using the Roman letters at his disposal. In the following years, when he revised his system, he abandoned even pseudo-Roman signs, and settled on completely non-Roman signs.[185]

Lu was not alone in distancing Chinese vernacular languages from the Roman alphabet. Wang Bingyao, the Cantonese pastor of the London Missionary Society whose Chinese telegraphic code in shorthand we have encountered in the first chapter, was strictly against the

[184] DeFrancis, ibid., 33.

[185] Jing Tsu calls Lu's syllabary "Latin alphabet." While it is true that he was inspired by the Roman alphabet (I reserve the term "Latin alphabet" for the communist internationalist project that I explain in the seventh chapter), Lu's system was unequivocally different from Latin letters. For his publications in 1906, Lu completely revised his phonetic graphics, abandoned his earlier vernacularist project, and printed his system according to Beijing Mandarin. Jing Tsu, "Chinese Scripts, Codes, and Typewriting Machines," in *Science and Technology in Modern China*, eds. Jing Tsu and Benjamin Elman (Leiden, Boston: Brill, 2014), 132-133; Zhuangzhang Lu, *Yimu liaoran chujie* (Beijing: Wenzi gaige chubanshe, 1957 [1892]); Zhuangzhang Lu, *Beijing qieyin jiaokeshu* (Beijing: wenzi gaige chubanshe, 1957 [1906]); Zhuangzhang Lu, *Zhongguo zimu beijing qieyin heding* (Beijing: wenzi gaige chubanshe, 1957 [1906]).

use of the Roman alphabet. As I briefly quoted in the first chapter, he saw the Roman Alphabet as an invading force that harmed the foundations of the nation, and contaminated the national essence (*guocui*). "Using other nations' systems of writing (*ziti* 字體) for [transcribing] the local sounds of our own nation (*benguo tuyin* 本國土音), even though it might be easy to carry out under current circumstances," noted Wang, "means allowing the foundation of our nation (*guoji* 國基) to be easily transformed (*yi zhuanyi* 易轉移)."[186] The desire to strengthen the national veins (*qiang guomai* 強國脈) demanded transforming writing, but reform could not come at the expense of the national foundation. Wang, in order to preserve the "essence of the lands (*zhongtu zhi ben* 中土之本)," chose the phonetic signs accordingly, not giving into the Roman letters of the much-admired Western nations. Short hand, at least according to him, was a better option, not only for Mandarin but also for Cantonese, his native tongue.[187] When alphabets and syllabaries mushroomed one after another, most of them avoided the use of the Roman Alphabet. Shen Xue, again despite his close contacts with the missionaries in Shanghai, opted for a short hand. Li Jiesan, a reformer from Fujian, adopted short hand to the Min vernaculars in Fujian.[188] Wu Zhihui, the first chairman of the Conference, invented his idiosyncratic phonetic alphabet, "Beansprout Alphabet" (*douya zimu* 豆芽字母), with the help of a foreign missionary in Shanghai in 1895, but his alphabet had nothing in common with the Roman letters.[189] Wang

[186] Bingyao Wang, *Pinyin zipu* (Beijing: wenzi gaige chubanshe, 1957 [1896]), 2. 更有要者，以別國字體寫本國土音，雖事勢或易行，然國基易轉移。

[187] Bingyao Wang, *Pinyin zipu* (Beijing: wenzi gaige chubanshe, 1957 [1896]).

[188] Jiesan Li, *Minqiang kuaizi* (Beijing: wenzi gaige chubanshe, 1957 [1896]).

[189] KMT Party History Archives, 稚11546 and 稚11509. Jingheng (Zhihui) Wu, "Sanshi wunian lai zhi yinfu yundong" in *Wanqing sanshiwu nian lai (1897-1931) zhi zhongguo jiaoyu*, edited by Yuanpei Cai (Longmen shudian, 1969 [1931]), 304.

Zhao, whose phonetic system was almost selected as the national phonetic alphabet, was inspired more by Japanese *kana* than the Roman alphabet, and invented a system distinct from both.[190] The growing sense of anxiety among reformers to preserve the "national essence" (*guocui*) after the defeat in the Sino-Japanese War in 1895 manifested itself in different non-Roman phonetic writing systems.

Each inventor was invested in his (and it was almost always a "his") invention, but some fared better than others. Wang Zhao's *Mandarin Syllabary* was one of the strongest candidates. A native of Zhili in the north, Wang was a supporter of the Hundred Day Reforms in 1898, which either ended up in death or in exile for the reformers involved. The latter option took Wang to Japan, where he befriended the renowned personages such as Liang Qichao and Kang Youwei. In 1900, he disguised himself as a Buddhist monk and scuttled back into China, traveling to Tianjin. There, he started working on his *Mandarin Syllabary* (*guanhua zimu*).[191] In 1901, Wu Rulun, a famous scholar of the Tongcheng school of classical studies and the superintendent of pedagogy at the Imperial University of Peking, traveled to Japan to survey the educational system. When he came back, Wu endorsed Wang Zhao's *Mandarin Alphabet*, which won Wang popularity not only in Beijing and Tianjin, but also in the royal court.[192] Publications started to come out in *Mandarin Syllabary*, sometimes accompanied by Chinese characters, and sometimes

[190] Zhao Wang, *Guanhua zimu duwu ba zhong* (Beijing: wenzi gaige chubanshe, 1957 [1906]).

[191] DeFrancis, ibid., 40-47; Kaske, ibid., 133-134.

[192] Rulun Wu, "Shang Zhang guanxue shu" in *Qingmo wenzi gaige wenji* (Beijing: Wenzi gaige chubanshe, 1958), 29. Kaske notes that Wang changed the number of his phonetic signs in 1903 from 49 initials and 15 finals to 50 initials and 12 finals. Kaske, ibid., 135.

standing alone.[193] Wang's syllabary, as Wu Rulun defended, could form the phonetic infrastructure for a national language (*guoyu*).[194]

The potential of *Mandarin Syllabary* as the basis for a "national language" notwithstanding, the definition of that language remained evasive. As Elisabeth Kaske perspicuously identified, the original title for Wang's syllabary was "Northern Vernacular Syllabary" (*beifang suhua zimu* 北方俗話字母); only later did he change it to *Mandarin Syllabary*, which represented particularly Beijing Mandarin.[195] As such, the national language that Wu Rulun imagined was that of Beijing alone; and if it were to be taken as the standard, it would be impossible to represent the distinct linguistic sounds of other provinces.

Wang's Beijing Mandarin-based script did not go unchallenged. Among multilingual vernacularists, Lao Naixuan, while a follower of Wang's signs, was the greatest critic of his Beijing-centrism. As a mathematician, legal reformer, prominent phonologist, and the director of Zhejiang University from 1901 to 1903, Lao defended the use of vernaculars along with a national language. A native of the southern province Zhejiang, Lao was the last in a string of southern vernacularists, and the most adamant among all of them. Some major figures, like Lu Zhuangzhang, had converted to Beijing-centrism in the 1900s, and the idea of one script and one language was gaining strength in the Shanghai circles, where Lao was slowly turning into a *persona non grata.*

Lao wanted to form a phonetic bank from which the vernaculars could take as many loans as they deemed necessary. Beijing Mandarin, for instance, only needed fifty initials and twelve

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[193] Jingheng Wu, "Sanshi wunian lai zhi yinfu yundong," 308-9. Kaske, 138-141.

[194] Rulun Wu, ibid. Wu wanted to follow the Japanese example of *kokugo*.

[195] Kaske, ibid., 136.

finals, according to Lao's calculations, but Nanjing would need fifty-six initials and fifteen finals, Wu vernaculars sixty-three and eighteen, Min and Cantonese vernaculars eighty-three initials and twenty finals. *Mandarin Syllabary* was Lao's starting point. He added diacritical marks to Wang's phonetic signs in order to accommodate southern differences, such as the voiced consonants and fifth tone that had been nagging the missionaries for decades. He first added six initials (*mu* 母), three finals (*yun* 韻), and a fifth tone for Nanjing vernacular (*ningyin* 甯音), and seven initials, three finals, one voiced consonant for Wu vernaculars (*wuyin* 吳音). Then, taking into consideration Min and Cantonese vernaculars (*min-guang* 閩廣音), he brought the total number of initials up to one hundred and sixteen, and finals to twenty. Voiced consonants (*zhuoyin*) were graphic derivatives of voiceless consonants (*qingyin* 清音), shown with diacritic marks, and so were tones, including the eight tones of Min and Cantonese.[196] The new name of his all-inclusive script was *Simplified Script* (*jianzi*).

In 1908, Lao traveled to Beijing to participate in drafting a new Qing criminal code, and during his stay, he pushed for the adoption of his script as the national standard. The new script, promoted under the new name *jianzi* 簡字 (*Simplified Script*), could be used both for distinct vernacular languages and a national language. The use of a script that could represent all languages in China, however, was not welcomed by monolinguists, who were afraid of political disintegration as an outcome of diverse linguistic representation.[197] When the Conference for the Unification of Pronunciation convened in 1913, Lao Naixuan did not even participate.

[196] Naixuan Lao, *Jianzi wuzhong*, 2 *ce* (Jinling, Guangxu dingwei [1907]) 1-6, 16.

[197] Kaske, ibid., 143-147.

Despite their differences regarding language justice, neither Wang Zhao nor Lao Naixuan strictly defended the abolition of Chinese characters, running counter to many reformers' wishes. While some scholars advocated their own scripts as opposed to Wang and Lao, a minority of reformers were still uncompromising on the ideal to Romanize Chinese. The leading voice of Romanization during the conference was Wu Zhihui, whose loyalties lay not so much with missionaries but with global anarcho-Esperantists.

A) Romanized Anarcho-Esperantism and the Graphics of National Essence

Wu Zhihui, before becoming the leader of the National Language Movement under the KMT in the 1930s, was a young anarchist in France in the early 1900s. He had been interested in phonetic scripts since his youth, and invented the Beansprouts Alphabet with the help of a missionary in Shanghai in 1895. In the early 1900s, Wu left for France, where his short-lived, yet passionate, acquaintance with anarchism commenced. He united with his friend Li Shizeng to form the internationalist "World Society" in 1906.[198] Embracing modernism as the solution to China's problems, he and his friends turned to the universal values of science, and started propagating what they believed to be the most universal and scientific language for all mankind: Esperanto.

First published in Russian under the title *International Language (mezhdunarodnyi iazyk)* in 1887, Esperanto was invented by the Polish ophtalmologist Ludwik Lejzer Zamenhof (1859-1917). Arguably the most successful of all invented languages, Esperanto spread throughout the world in the early years of the twentieth century, attracting enthusiasts from European and non-

[198] For a history of anarchism in China, see, Peter Zarrow, *Anarchism and Chinese Political Culture* (New York: Columbia University Press, 1990); Arif Dirlik, *Anarchism in the Chinese Revolution* (Berkeley: University of California Press, 1993).

European cultures. At the time of his invention, Zamenhof relied on the grammatical and phonetic structure of Romance languages to invent his language of hope, and published its latest version *Fundamento de Esperanto* in 1905, at a time when linguistic differences challenged international (and even national) communication. Zamenhof was a successful communication engineer, whose invented language did indeed become the mother tongue of thousands of people, shattering the dichotomy between "natural" and "invented" languages.[199] Perhaps more significantly, from the early-twentieth century to the start of the Second World War, many intellectuals and activists from diverse national and linguistic backgrounds saw Esperanto as the new medium to break free of the chains of linguistic imperialism. Turn-of-the-century anarchists, Russian communists after the revolution, and Chinese communists before and after the founding of the PRC, all embraced the internationalist goal of Esperanto.

In the early 1900s, Zamenhof's invention was foremost embraced by anarchists in Europe and Japan, through whom it reached the minds of the Chinese dissidents living in Paris and Tokyo. Shō Konishi has carefully pointed out that Esperanto was an alternative to the state-centered vision of an international global order; it was a communicative instrument that "ostensibly without culture or territorial belonging, enabled the free and spontaneous formation of transnational societies and associations."[200] Esperanto offered a neutral platform for all national and vernacular languages, and in doing so, it promised salvation from any form of linguistic domination. The culture-less quality of Esperanto made it a highly reliable candidate to create a new world culture without a center.

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[199] The estimated number of native Esperanto speakers in the early 2000s was 2,000. See: Renato Corsetti et al. "Regularizing the Regular: The Phenomenon of overregularization in Esperanto-speaking children," *Language Problems and Language Planning* 28:3 (2004), 265.

[200] Sho Konishi, "Translingual World Order: Language without Culture in Post-Russo-Japanese War Japan," *The Journal of Asian Studies*, vol. 72, no. 1 (Feb., 2013), 92.

The first Chinese encounter with Esperanto took place in Japan and France, simultaneously, in 1907.[201] In Japan, Ōsugi Sakae was the renowned anarchist proselytizer of Esperanto, and his impact on Chinese dissidents came to light in the journal *Tianyi*, published in Tokyo by Chinese revolutionaries, among whom were figures such as the anarchist couple Liu Shipei and He-Yin Zhen. The ease of learning Esperanto was of paramount importance, according to Liu, especially in China, where mutually incomprehensible languages erected the biggest obstacle to linguistic unification.[202] Thus, I deem it important to note that the Esperantist project should not be seen as an effort to replace the Chinese language, since as we have seen there was no one "Chinese language" to be replaced. Rather, it posed a radical solution to the quest for a single "national language" that would not privilege any one of the other languages spoken across the county.

Chinese anarchists in France were more spirited with regard to Esperanto than those in Japan. Their journal *New Century* (*xin shiji;* in Esperanto, *La Novaj Tempoj*) lent a major support for the cause of Esperanto, translated into Chinese as "the new international language (*wanguo xinyu*)," even though they never published articles in Esperanto, as did their fellow Japanese Esperantists. The leaders of the movement in France were Wu Zhihui 吴稚晖, Li Shizeng 李石曾, Zhang Jingjiang 张静江, and Chu Minyi 楚民谊. Chinese Esperantists in France directly attacked the Chinese characters together with Chinese language, and argued that Esperanto was the remedy for both: it had a phonetic alphabet, no tones, and because of its alleged precision with words, no

[201] The works on Esperanto in China mainly focus on the period until the 1930s. Gregor Benton, *Chinese Migrants and Internationalism: Forgotten Histories, 1917-1945* (London and New York: Routledge, 2007), 92-114 (co-authored with Gotelind Müller); Zhiping Hou, *Shijieyu yundong zai zhongguo* (Beijing: Zhongguo shijieyu chubanshe, 1985); Gerald Chan, "China and the Esperanto Movement," *The Australian Journal of Chinese Affairs*, no. 15 (Jan., 1986), 1-18; Binghui song, "Lun zhongwai wenhua jiaowangzhongde shijieyu yundong," *Journal of Hangzhou Teachers College*, no. 4 (July, 2004), 7-13; Zhuoen He, Hui Jiao, "Shijie zhuyide zhongguo laoyin: zhongguo shijieyu yundong de teshu jincheng," *Journal of Shenzhen University,* vol. 30, no. 6 (Nov., 2013), 216-224.

[202] Benton, ibid., 93-94.

semantic ambiguity. Esperanto seemed to provide the solution that late-Qing reformers were looking for all along.

Wu Zhihui and others' radical project to replace Chinese by Esperanto caused stir among the Chinese dissident community in Japan. Zhang Taiyan, the major voice in National Learning (*guoxue*) circles and a proponent of preserving what they called the national essence (*guocui*), penned a long response to the Esperantists in France. Esperantists' claim that Chinese characters were obsolete artifacts was groundless, according to Zhang. How could the Japanese be so advanced, if characters were to blame? The problem, according to Zhang, was schooling, not the writing system per se.[203] But even so, Zhang was of the opinion that China *did* need a phonetic alphabet, albeit not a Roman one, and certainly not one that would favor Esperanto over some form of Mandarin.

Zhang Taiyan's phonetic signs were meant to accompany Chinese characters, not replace them, in order to help the reader consume more classical literature. The signs were composed of 36 initials (*niuwen* 紐文) and 22 finals (*yunwen* 韻文), and they were all taken from the ancient forms of Chinese characters, as found in the Seal Script (*zhuanwen* 篆文) of first century BC. The initial for "d" as in *dao* for instance was  , which was the seal script for *dao* 刀.  was the seal script of *nai* 乃, and stood for the initial "n." Finals followed the same logic.  Stood for *ao*, for it was the seal script for *yao* 幺. As such, using Zhang's phonetic script, *dao* could be written as  , *nao* as  , and so on.[204] To the readers of the contemporary *bopomofo*, this script will

[203] For the debate between Wu Zhihui and Zhang Taiyan, see, Benton, ibid., 96-97; Kaske, ibid., 380-386.

[204] Taiyan (Zhang), "Bo zhongguo yong wanguo xinyu shuo," *Minbao*, no. 21 (1908), 62-68.

look familiar, for its revised version became the official National Phonetic Alphabet (*zhuyin zimu*) in 1918; it was renamed as Phonetic Symbols (*zhuyin fuhao*) in 1930, and is still in use in Taiwan. Using the current system of transcription, *dao* would be written as ㄉㄠ, and *nao* as ㄋㄠ.

The graphic interface of Zhang's script reflected his political stance. For Zhang, language, customs, and history were indivisible supports for national unity. The Poles, he noted, lost their language in the hands of Russia, the Eastern Romans lost their customs to Turkic invasions, and Chinese history was destroyed by the Manchus.[205] Only a revival of language, customs, and history could save the Chinese essence. Bearing in mind Zhang's nativist devotion to "make use of the national essence to enliven the [Chinese] race (*zhongxing* 種性) and enhance patriotic enthusiasm," his political intention in script engineering becomes clear.[206] For him, the information revolution was a selective restoration of Chinese-ness. As for national pronunciation, the ideal was that of Hubei, which he thought to be the closest to classical pronunciation.[207]

The writing systems of Zhang Taiyan and anarco-Esperantists were inseparable from the political visions they had for the future of China. Zhang's script, which later came to be known as *Syllabary to Record Sounds* (*jiyin zimu* 記音字母) dovetailed with the recent inventions of non-Roman phonetic scripts to preserve a "national essence," and gave the project a sturdy

[205] Taiyan Zhang, "Aimie shu," *Zhang Taiyan quanji*, *vol. 3* (Shanghai: Shanghai renmin chubanshe, 1982-), 324, quoted in Jinshu Huang, *Zhang Taiyan yuyan wenzi zhi xue de zhishi (jingshen) xipu* (Huamulan wenhua, 2012), 70. For Zhang's political philosophy, see, Viren Murthy, *The Political Philosophy of Zhang Taiyan: The Resistance of Consciousness* (Leiden: Brill, 2011).

[206] Taiyan Zhang, "Wode shengping yu banshi fangfa," in Zhang Taiyan de baihuawen (Taibei: Yiwen yinshuguan, 1972), 69. 用國粹，激動種性，增進愛國之熱腸.

[207] Jinxi Li, *The Chinese phonetic system and language*, 34.

ideological basis with anti-Manchu racial imagination. Zhang's phonetic script in China was meant to facilitate the acquisition of the Chinese classics and traditional knowledge, more so than that of modern systems of knowledge, to save China from the impending oblivion. Romanization and Esperanto, on the other hand, aimed to open China up to an anti-imperialist scientific and literary culture. For the anarcho-Esperantists, an utterly new and globally synchronic anti-colonial cultural production, not a faster reading of Chinese classics, offered the real salvation to China.

1907 was a year when the global circulation of anarcho-Esperantist projects offered an alternative to the monolingual and ethnicity-based inclinations of a nascent Chinese nation-state. In the following years, however, as global revolutions produced an urgency for linguistic engineering virtually everywhere in the world, anarcho-Esperantism lost its appeal, although its impact reverberated in various ways in the following decades across the world.[208] When the revolution hit China in 1911, even anarcho-Esperantists like Wu Zhihui turned to more practical solutions to solve the linguistic crisis.

B) 1913: Inventing the National Phonetic Alphabet and National Pronunciation

When the Conference for the Unification of Pronunciation (from now on, the Conference) convened in 1913, phoneticization had been an ongoing project for more than two decades. Eighty-two scholars representing all provinces were summoned to Beijing, although never once were all participants present at the same time. Some provinces were better represented than others. There were seventeen scholars from Jiangsu and nine from Zhejiang, for instance, as

[208] Michael Gordin, *Scientific Babel: How Science Was Done Before and After Global English* (Chicago: University of Chicago Press, 2015), 105-131.. Esperanto gained momentum especially in the USSR, whence it re-entered China. A. I. Korolevich, *Kniga ob Esperanto* (Kiev: Naukova Dumka, 1989).

opposed to three from Sichuan and one from Xinjiang.[209] The task at hand was to devise a common pronunciation for the six thousand and five hundred characters.[210] But there were two major problems: which regional pronunciations were going to be deemed as "national pronunciation (*guoyin*)"? And what script was going to be chosen to transcribe it?

When Wu returned from France, he abandoned his earlier Esperantist, and even set aside his admiration for the Roman alphabet, but was still a major supporter of complete phoneticization and character abolition. His phonetic dream moved one step closer to reality when he was selected as the chairman of the Conference in 1913. What made matters difficult for him was the vice-chairman, who turned out to be strongest name in script reform—Wang Zhao.

Wang and Wu despised each other. They had different visions both for the future of a national alphabet *and* a national language. From the start of the conference, Wang's Beijing-centrism was in the ascendance; and the ideal alphabet for him was, obviously, his own *Mandarin Syllabary*. Wu Zhihui, on the other hand, was from Jiangsu himself, which made him naturally attuned to the voiced consonants, *zhuoyin*, and the fifth tone, *rusheng*, of the south.[211]

Both had followers. Wang's followers sought an alphabet that could function in conjunction with the Chinese characters, as in Japanese, and they agreed with Wang in that Beijing Mandarin should become the national language. Wu's followers, some of whom were his fellow patriots from Jiangsu, advocated for the importance of *zhuoyin* and *rusheng*, although they did not see eye to eye in terms of the preferred graphics. According to the reminiscences of Xing Dao, forty

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[209] Jinxi Li, *Gwoyeu yunndonq shyy gang [Guoyu yundong shigang], juan er* (Shanghai: Commercial Press, 1934), 51-52.

[210] The characters were based on Li Guangdi's 季光地 *yinyun chanwei* 音韻闡微, a collection of character pronunciations that Li started compiling under Kangxi's reign, and published in 1728 under Yongzheng. The original contained more than 16,000 characters.

[211] Kaske, ibid., 408.

to fifty of the participants were script inventors, such as Wang Zhao, Lu Zhuangzhang, Cai Zhang (Cai Xiyong's son), Wu Zhihui, Ma Tiqian 馬體乾 from Zhili, Zheng Zaochang 鄭藻裳 from Guangdong, and others from various provinces.[212] Each reformer asked for a different script, and agreement seemed a distant hope.

This being the case, one cannot help but ask: how did Zhang Taiyan's alphabet become the national alphabet? What makes the question even more intriguing is the fact that Zhang Taiyan was not even present in the conference. The response lies with Zhang's disciples from Zhejiang, who did their utmost to propagate Zhang's alphabet. Professors of Beijing University Hu Yilu 胡以魯, Ma Yuzao 馬裕藻 , and Zhu Xizu 朱希祖, along with officials from the Ministry of Education Xu Shouchang 許壽裳, Qian Daosun 錢稻孫, and Zhou Shuren 周樹人(better known as Lu Xun, who was not officially a participant but he was present at the Conference), were there to endorse Zhang's alphabet.[213] The strength of Zhang's alphabet lay in its equal distance to all phonetic systems; it struck all the right chords. It could be used as a stand-alone writing system, which won the hearts of the alphabetizers; it could also be written alongside characters like Japanese *kana*, which persuaded the alphabet-on-the-side faction. Further, it was not based on a Roman alphabet, which satisfied the anti-Romanists; but more importantly, it was not completely invented since it was based on ancient forms of Chinese characters, which satisfied the ubiquitous nativist contingent. Besides, when everyone else was pretending to become the next Cang Jie, the mythical creator of the Chinese writing system, Zhang's physical absence from the

[212] Dao Xing, "Duyin tongyi hui gongding guoyin zimu zhi gaishuo," *Dongfang zazhi*, vol. 10, no. 8 (1914), 11. Li Jinxi claimed that Wu was still a Romanist, but the script that Wu proposed during the conference did not resemble the Roman alphabet at all. He might have proposed a second script based on the Roman alphabet, which had not made it into the conference proceedings.

[213] Jinxi Li, ibid., 56. Kaske, ibid., 409. Ma Yuzao, Zhu Xizu, Qian Daosun, Xu Shouchang, and Zhou Shuren proposed certain changes to the National Phonetic Alphabet, but they were not carried through. See, KMT Party History Archives, 稚02885, 讀音統一會提議案

conference also helped his invention.[214] In short, the final selection of the National Phonetic Alphabet was the result of circumstances that were as contingent as they could get.

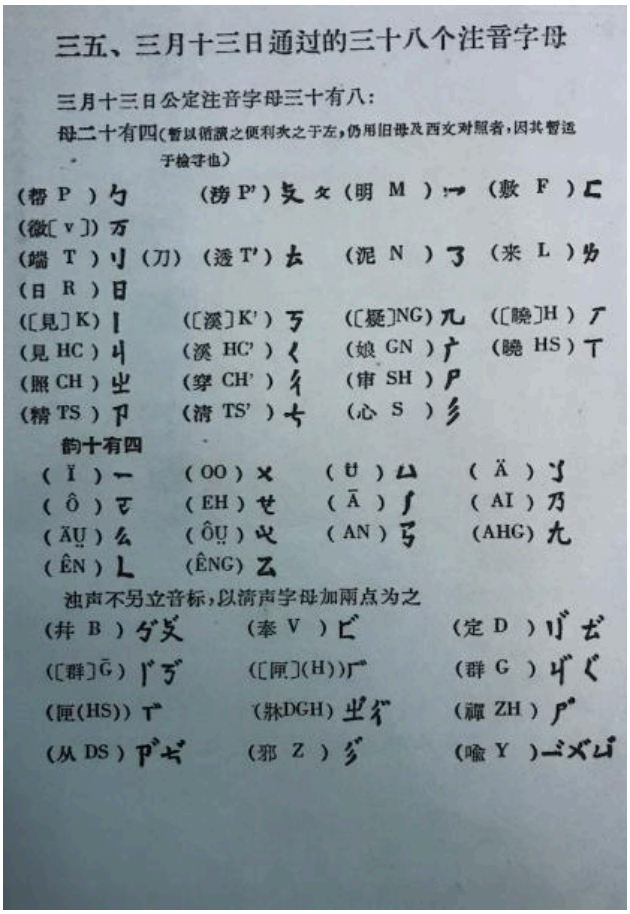
On March 13, 29 out of 45 delegates present voted for a revised version of Zhang's alphabet with 24 initials and 14 finals.[215] With the addition of diacritical marks, a further twelve signs to represent southern voiced consonants were also incorporated into the alphabet, despite Wang Zhao's vehement opposition.[216] There were thus 51 clusters of signs in total in the first National Phonetic Alphabet.[217] Southern sounds, in other words, were still in the picture. (Fig. 3.1)

[214] Wu Zhihui noted his frustration claiming that everyone was trying to become the next Cang Jie. See, Wu Jingheng, ibid..

[215] Li Jinxi noted that 15 of the signs were completely based on Zhang Taiyan's invention. Jinxi Li, ibid. In 1919, an extra letter *e* ㄜ was added to distinguish *o* ㄛ from *e* ㄜ.

[216] Jinxi Li, ibid., 59. Thirty participants from Sichuan, Yunnan, Fujian, and Guangdong, including Wang Zhao, Ma Tiqian, and Wang Pu, were against the use of voiced consonants.

[217] *1913 nian duyin tongyi hui ziliao huibian*, in *Pinyin wenzi shiliao congshu*, vol. 5 (Beijing: Wenzi gaige chubanshe, 2015), 77.


三五、三月十三日通过的三十八个注音字母

三月十三日公定注音字母三十有八：

母二十有四（暂以循读之便利夹之于左，仍用旧母及西文对照者，因其暂适于检寻也）

（帮 P ）ㄅ （滂 P' ）ㄆ （明 M ）ㄇ （敷 F ）ㄈ

（微〔 v 〕）ㄪ

（端 T ）ㄉ （刀） （透 T' ）ㄊ （泥 N ）ㄋ （来 L ）ㄌ

（日 R ）ㄖ

（〔见〕K）ㄍ （〔溪〕K' ）ㄎ （〔疑〕NG）ㄫ （〔晓〕H ）ㄏ

（见 HC ）ㄐ （溪 HC' ）ㄑ （娘 GN ）ㄬ （晓 HS ）ㄒ

（照 CH ）ㄓ （穿 CH' ）ㄔ （审 SH ）ㄕ

（精 TS ）ㄗ （清 TS' ）ㄘ （心 S ）ㄙ

韵十有四

（ Ĭ ）ㅣ （ OO ）ㄨ （ Ŭ ）ㄩ （ Ä ）ㄚ

（ Ô ）ㄛ （ EH ）ㄝ （ Ā ）ㄞ （ AI ）ㄞ

（ ĀU ）ㄠ （ ÔU ）ㄡ （ AN ）ㄢ （AHG）ㄤ

（ ÊN ）ㄣ （ÊNG）ㄥ

浊声不另立音标，以清声字母加两点为之

（并 B ）ㄅ゛ （奉 V ）ㄈ゛ （定 D ）ㄉ゛

（〔群〕Ḡ）ㄍ゛ （〔匣〕(H)）ㄏ゛ （群 G ）ㄐ゛

（匣(HS)）ㄒ゛ （狄DGH）ㄓ゛ （禅 ZH ）ㄕ゛

（从 DS ）ㄗ゛ （邪 Z ）ㄙ゛ （喻 Y ）ㄧㄨㄩ

Fig. 3.1 – The National Phonetic Alphabet[218]

Script was ready but its language was not. The numerical supremacy of the Zhejiang-Jiangsu group, which numbered twenty-six in total, was alarming for Wang Zhao, for he did not want his northern language to lose out as had his script. He started to mobilize participants from his native Zhili province and other northern and central provinces to raise support for the use of Beijing Mandarin. In March, twenty-three participants (including some outliers such as Zheng Zaochang from Guangdong and Lu Zhuangzhang from Fujian, and even Yang Qu from Zhejiang) signed a petition for each province to have only one vote in making the selection of national pronunciation. While a democratically sound request, it had the potential to reduce the power and

[218] ibid., 397.

scholarly charisma of the Zhejiang-Jiangsu group.[219] After some debate, the request was granted, but the animosity between the Beijing and Zhejiang-Jiangsu cliques persisted until the final days of the conference. Sometimes, when words were not enough, scholars even resorted to physical violence. At one point, Wang Rongbao and Wang Zhao got into a debate, which did not end well. When Wang Rongbao returned to his seat, he started talking to his colleagues, and uttered the word "rickshaw" (*huangbao che* 黃包車) in Shanghainese. But Wang Zhao misheard the word as "bastard" (*wangba dan* 王八蛋). Infuriated, he shouted back: "I'll beat you up, you bastard!" (*wo jiu lai zou ni zhege wangbadan* 我就來揍你這個王八蛋!).[220]

Wang Rongbao left the Conference afterwards, and apparently Wu Zhihui could not take it any longer either. Wu resigned in May, and left his position as the chairman to vice-chairman Wang Zhao. The wrath of Zhejiang-Jiangsu scholars was not easily borne by Wang, however, and after a few days as the chairman, he also left the position. Wang Pu, a protégé of Wang Zhao but not a strict follower of him, was asked to become the new president of the Conference.[221] Under Wang Pu's leadership, the Conference finally decided on the national pronunciation.

It was neither a win for Beijing nor for Zhejiang-Jiangsu. The national pronunciation was granted the fifth tone, which did not exist in Beijing Mandarin. The pronunciation of initial consonants was sometimes in accordance with the Beijing pronunciation and sometimes not. Voiced consonants were also preserved in some cases.[222] The national pronunciation turned out to be so ad hoc and artificial that no commoner from any province would be able to understand

[219] ibid., 34-35.

[220] Jinxi Li, ibid., 60; DeFrancis, ibid., 58.

[221] Jinxi Li, ibid., 61.

[222] Kaske, ibid., 413-416.

it. Esperanto, in my opinion, might have been a better solution. Still, the Conference was officially over on May 22, 1913. Implementation of its decisions now rested on the shoulders of the Ministry of Education.

II. Missionaries and the National Phonetic Alphabet

The Conference did not guarantee anything. The political turmoil that China plunged into right after the declaration of the Republic did not make the promotion of the NPA an easy task in any case. Cai Yuanpei, the Minister of Education who had been the mastermind behind the Conference, resigned before the Conference had even started, due to ideological conflicts with President Yuan Shikai. From 1913 until the death of Yuan in 1916, the fate of the National Phonetic Alphabet was unclear; and foreign representatives in China were still putting their bets on Wang Zhao's *Mandarin Syllabary*.

Sidney G. Peill, a missionary from the London Missionary Society, was one of the first to recognize the strategic value of native inventions. Born in Madagascar to missionary parents in 1878, Peill was dispatched to north China in 1906. Employed as a medical missionary in Cangzhou and Xiaozhang, Zhili, Peill realized the significance of literacy for missionary work in hospitals. Men and women from the countryside would spend three to four weeks in the hospital, which in the eyes of Peill was long enough to teach the fundamentals of Christian faith, but too short to make them literate and self-sustained in their studies.[223] The solution for him, just like many other Christians for the past several decades, was the use of a phonetic alphabet capable of expediting the acquisition of missionary-produced religious information. Among the available

[223] L. H. Gaunt (ed.), *The Chronicle of the London Missionary Society, vol. 15, New Series* (London: London Missionary Society, 1906), 45; Sidney G. Peill, "'Open Vision' in China," in *The Beloved Physician — and Others*, ed. J. Peill (Westminster: London Missionary Society, 1922), 150-151.

schemes at hand, his favorite was not the Roman alphabet, but Wang Zhao's *Mandarin Syllabary*.

Peill was overjoyed by Wang's invention, for it offered an alternative to the Roman Alphabet.[224] Originally, Wang Zhao's system had fifty initials and twelve finals, but Peill and his unnamed associates added eight more finals, bringing the number to twenty and clarifying certain pronunciation problems.[225] In 1916, three years after the selection of Zhang's alphabet as the NPA, Peill had John's Gospel in print in *Mandarin Syllabary*, with the hope that the system would be used in North China (fig. 3.2).

[224] Sidney G. Peill, "Scriptures in Phonetic for North China," *The Chinese Recorder*, vol. 47 (1916), 330.

[225] ibid., 335 The dialect differences could never be surmounted by a phonetic alphabet, noted Peill, and *Mandarin Syllabary* was the closest it could get to an indigenous system that can be understood by different dialect communities in Northern China, which were similar to Peking and Tianjin dialects.

Fig. 3.2 – Peill's *Mandarin Syllabary*[226]

Peill was not the only one to follow the lead of Wang Zhao. Walter Caine Hillier, a British diplomat in China who later became a Professor of Chinese at King's College, invented a typewriter, a linotype machine, and a Braille system for the blind based on Wang's sixty-two signs. The patent rights for Hillier's inventions were held by a certain Mrs. Grant from London, and the Remington Standard Typewriter Company had already adapted a typewriter to Wang's

[226] "Kuan-hua Tzu-mu," *Chinese Recorder* 47 (May, 1916), 337.

Mandarin Syllabary, and the Linotype Company was ready to supply linotype machines in 1915.[227]

It would be remiss to gloss over the fact that foreign missionaries and diplomats were considering Wang's *Mandarin Syllabary* to become the national alphabet and Beijing Mandarin the national language even in 1915-16. The selection of the National Phonetic Alphabet at the Conference of 1913 was evidently not very effective. Neither did the artificial national pronunciation receive major support. The first journal published in the NPA was titled *Journal of Mandarin Phonetic Alphabet* (*guanhua zhuyin zimu bao*), signaling the northerners' dissatisfaction with the national pronunciation.[228] Only after Yuan Shikai's death in 1916 did the NPA make its way back into the Ministry of Education. It was finally promulgated in November, 1918, and in April of the next year, the Preparatory Commission for the Unification of National Language (*guoyu tongyi choubeihui*) was formed. But the promulgated alphabet was not quite the same as the one decided on in 1913. Voiced consonants, which were originally designated with diacritic marks or clusters of signs, were not part of the official 39 signs in 1918. The problems with national pronunciation notwithstanding, the Ministry of Education was unwilling to give any chance of representation to the southern vernaculars. Northern supremacy only grew stronger in the coming years, and in 1926, the Preparatory Commission declared the "new national pronunciation (*xin guoyin*)," adjusted according to Beijing Mandarin. The southerners were definitively excluded.

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[227] Sir Walter Hillier, "Memorandum Upon an Alphabetical System for Writing Chinese, the Application of this System to the Typewriter and to the Linotype or other Typecasting and Composing Machines and its Application to the Braille System for the Blind (London: William Cloves and Sons, [1915])" in *China and the Chinese: a Collection of Pamphlets Relating Thereto*, vol. 70, no page number.

[228] *Journal of Mandarin Phonetic Alphabet (guanhua zhuyin zimu bao)* was later renamed as *Journal of National Language Phonetic Alphabet (guoyu zhuyin zimu bao)*. The pages of the journal were all handwritten and lithographed.

Despite the injustice that southern sounds were being squeezed out, key figures of the May Fourth Movement were excited about the new alphabet. Qian Xuantong 錢玄同 and Wu Zhihui believed in the power of the NPA so much that they were trying to correspond in the NPA without Chinese characters —although it should be noted that they were Romanizers at heart.[229] Li Jinxi published articles in the NPA without Chinese characters.[230] In 1922, the Preparatory Commission prepared the typeface for the NPA for the first time, and the Ministry of Education officially promulgated it. In conformance with the scientific spirit of the day and the will to train the students in basic mathematical concepts, the strokes in each letter followed a standardized geometrical angle. The second stroke in "*m* ㄇ," for instance, formed a 90-degree angle; in "*z* ㄗ," a 60-degree angle was in order; in "*ou* ㄡ," a 45-degree. Other angles were permutations of these three: "*h* ㄏ" had a 105 degree (60+45), "*en* ㄣ" a 135 degree (90+45, which was the same with 45), and other letters followed similar orders.[231] (Fig. 3.3) A few years later, the famous linguist Chao Yuen Ren 趙元任 invented a Romanized equivalent of the NPA, the much-praised (and much-loathed) *Gwoyeu Romatzyh*, with the support of Lin Yutang 林語堂, Qian Xuantong, Wang Yi 汪怡, Zhou Bianming 周辨明, and Li Jinxi.[232] Western typewriter companies were also among the alphabet enthusiasts. In 1924, Burnham C. Stickney, an assignor to Underwood

[229] KMT Party History Archives, Letter from Qian Xuantong to Wu Zhihui, May 26, 1919, 稚09995. Also, Xuantong Qian, "Lun zhuyin zimu," *Xin qingnian*, vol. 4, no. 1 (1918), 6-7. Qian Xuantong thought of Esperanto's Roman alphabet as an alternative to Chinese. See: Zhuoen He and Hui Jiao, ibid., 220.

[230] Jinxi Li, "Guoyin zimu yinshuati," *Guoyu yuekan*, vol. 1, no. 7 (1922), 52-53.

[231] "Jiaoyu bu gongbu zhuyin zimu shufa tishi," *Shaoxing jiaoyujie*, vol. 1, no. 3 (1922), 1-3.

[232] *Gwoyeu Romatzyh* was based on the "new national pronunciation" (*xin guoyin*) readjusted according to Beijing Mandarin in 1926. See, chapter 8.

Typewriter Company, received a patent for his Chinese Phonetic Typewriter.[233] In short, the 1920s was the dawn of an alphabetical age in China…

Fig. 3.3 - Typeface for the National Phonetic Alphabet,
approved by the Ministry of Education in 1922

Or so it seemed. The material, organizational, and political infrastructure necessary for script reform and language unification was conspicuously absent in the 1920s. The fonts were ready, but the Ministry of Education lacked the funds to subsidize printing presses, publish and distribute textbooks, train and dispatch teachers speaking one common language, and thereby raise a new generation of monolingually skilled minds. Chinese characters were still the

[233] "Typewriting Machine." United States Patent Office, Burnham C. Stickney, of Elizabeth, New Jersey, Assignor to Underwood Typewriter Company of New York, NY, A Corportation of Delaware. Application Filed March 28, 1922. Serial No. 547,450. Patented Apr. 9, 1924. It is likely that Underwood Typewriter Company solicited the help of Dr. Tewksbury, the typeface designer from the Phonetic Promotion Committee, and personally involved in keyboard designs. See: Phonetic Promotion Committee Records, 1-1-14

dominant medium of instruction and communication, and without a strong centralized government, the NPA could not take off in the 1920s. Even the Shaanxi warlord Yan Xishan, who wanted to employ the new medium to build his own state, was unable to train enough teachers just for his province.[234] A country-wide propaganda for the NPA needed more than intellectual acumen.

Phonetic Promotion Committee

That is where the missionaries came back into the picture. As a matter of fact, they had never left. Since the early twentieth century, they were closely following the Chinese reformers and even selectively employing indigenous scripts to evangelize. In October 1918, right before the promulgation of the NPA by the Ministry of Education, the missionary establishment decided to employ it as well.[235] The Phonetic Promotion Committee (PPC) was founded for this purpose, and it shouldered the final mission to alphabetize China —but this time, on Chinese terms.

This precocious embrace of the NPA lay at the intersection of two major trajectories. First, the missionaries were never exclusively committed to the use of the Roman Alphabet per se, as Crawford's Shanghainese syllabary that we saw in the previous chapter and the above-mentioned Peill's *Mandarin Syllabary* testified. The missionaries' major concern about non-Roman scripts, as I have explained in the previous chapter, was the typographical problems that came with them. The wave of phoneticization in China by Chinese scholars was therefore a blessing for the

[234] According to what seems to be an impossibly bloated missionary account, Yan printed two million textbooks in Shaanxi. "Letter to American Board of Commissioners for Foreign Missions," Te Burke Library, Columbia University, Union Theological Seminary, Missionary Research Library Archives: Section 6 (MRL: 6), "China Continuation Committee Records, 1912-1922 (CCCR)," 1-1-8.

[235] The missionaries unanimously voted for the NPL (*zhuyin zimu*) in the sixth annual meeting on September 24-25, 1918. *Proceedings of the Seventh Annual Meeting of the China Continuation Committee, Shanghai April 25-30, 1919* (Shanghai: Offices of the China Continuation Committee, 1919), 58. Proceedings of Annual Meetings are all preserved in "China Continuation Committee Records, 1912-1930."

missionaries. Having sensed the propitious wind of the NPA, the missionaries were quick to veer toward it with the Phonetic Promotion Committee. Due to his experience with native phoneticization, Peill was selected as the chairman of the PPC.

Apart from the flexibility of the missionaries, the changes in the world missionary movement was also significant for the institutionalization of the PPC. Starting with the World Missionary Conference in Edinburgh in 1910, disparate Christian missions around the world had come to an understanding to work together. "Continuation Committees" were formed to ensure the cooperation between different missions, and in China, this coordinative and governing body came to be known as the China Continuation Committee (CCC), under the auspices of which the Phonetic Promotion Committee came to life in 1918.[236] John R. Mott, the chairman of the Edinburgh Missionary Conference, was personally involved in the creation of the China Continuation Committee at the Shanghai Missionary Conference in 1913. The purpose of the CCC was to coordinate between different missions and distribute the missionary force in China more equally throughout the provinces to bolster evangelization.[237] Even though the Committee was not adequately representative of the missions, it still gave a coherent body to fragmented missionary work in China.[238]

One of the objectives of the Committee was to work with the Chinese government, especially in educational improvement. As Francis L. H. Pott, an American Episcopal missionary from

[236] John R. Mott, *The Continuation Committee* (Edinburgh: Continuation Committee of the World Missionary Conference, 1910), 17.

[237] The lack of communication between missions was one of the major topics of discussion in the Shanghai Missionary Conference. See, "Shanghai Missionary Conference," CCCR, 1-2-10.

[238] CCCR, 1-2-4. There were 105 missions in China, but only 65 members of the CCC. By rule, a third of the members had to be Chinese. There were 22 Chinese, 19 British, 19 American, and 5 European Continental members. In terms of the ecclesiastical groups, there were 13 Presbyterian, 11 Methodists, 9 Anglicans, 9 Congregationalist, 5 Baptist, and 18 others.

Shanghai, noted: "The present Ministry of Education cannot do much for primary education. Our attitude must be such as to ensure the Government that we are not setting up a rival system, but that we want to help in this critical time in Chinese history. We must adopt, as far as possible, the Government curriculum and their school period."[239] The missionaries achieved their goal, for they were already in touch with some of the leading figures in the phoneticization movement. As a matter of fact, the formation of the Phonetic Promotion Committee *preceded* the official promulgation of the NPA, which proved the intimate tie between the missionaries and the Chinese reformers.[240] The PPC had on its advisory board figures like Wang Pu, the last chairman of the 1913 Conference and one of the most prominent names in the National Language Movement, and future Republican educators, such as Chen Zhefu, Guo Bingwen, and Yan Jialin, who later initiated the Scouts of China.[241] Chinese scholars of the alphabet not only approved and supported the missionary movement, but also in part relied on it, for the organizational power of the CCC was central to the promotion of the NPA. The printing presses of the missionaries had been running for this purpose for decades, and given the government's lack of funds to propagate the system, they were the movement's best bet.

Sidney Peill began his duty as the chairman of the Committee in October, 1918.[242] Susie J. Garland, who in the following years shouldered most of the literary work, was appointed as the secretary. Garland had arrived in China in 1891, and was working with the China Inland Mission.

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[239] "Shanghai Conference - Christian Education," CCCR, 1-2-10.

[240] NPA was officially promulgated on November 23, 1918. PPC was formed a month earlier in October, 1918.

[241] Letter, Warnshuis to C. H. Patton, CCCR, 1-1-11; "Minutes of the Meeting of the Phonetic Promotion Committee, November 19, 1920," CCCR, 1-1-9; *Proceedings of the Eighth Annual Meeting*, 58; *Proceedings of the Seventh Annual Meeting*, 58. It should be noted that Li Jinxi's book, *Chinese Phonetic System and Language,* was translated by the missionary Alex Mackensie, and checked by Li himself.

[242] "Attacking Illiteracy with the National Phonetic System," *The China Sunday School Journal*, vol. 7, no. 12 (1918), 1101.

The appointment of Garland was equally opportune, for she had worked extensively in Gansu with the CIM, and had also invented her own phonetic system.[243] Peill and Garland were the best in the field.

After several months of work, however, Peill resigned. The primary reason was that he was not convinced of the superiority of the National Phonetic Alphabet over *Mandarin Syllabary*. In a letter he penned to Garland in April, 1920, he wrote that according to his observations, young boys and girls who learned *Mandarin Syllabary* in a fortnight could not read the NPA even after a few months of study. Peill was inexplicably furious with the NPA, as his abundant use of exclamation marks and upper-case letters made clear:

> Dr. Warnhuis [vice chairman and treasurer of the PPC] … told the secretary of the London Missionary Society … that I had said the Chu Yin [*sic*, NPA] was the best system for illiterates!! Also he said that I was teaching Chu Yin at my own station instead of Kuan Hua Tzu Mu [*sic*, *Mandarin Syllabary*]!!! … That Chu Yin was being read fluently by the patients in my hospital!! … IN THE CHU YIN CLASS 105 HOURS OF INSTRUCTION ENDED IN COMPLETE FAILURE. … IN THE KUAN HUA TZU MU CLASS, 26 HOURS OF INSTRUCTION RESULTED IN COMPLETE SUCCESS IN EVERY CASE… NO ONE CAN BE MORE THOROUGHLY DISAPPOINTED THAN I AM TO FIND ALL MY YEARS CONFIRMED THAT CHU YIN TZU MU IS NO ADEQUATE SUBSTITUTE FOR KUAN HUA TZU MU.[244]

Peill's letter must have come as a surprise, for less than a year ago, Peill had written another letter praising the wonders of the NPA.[245] It is not entirely clear what turned Peill from being a dedicated supporter to a venomous critic, but in any case, he kept publishing in *Mandarin*

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[243] "Bulletin no. 6, April 1921," in Missionary Research Library Archives: Section 6, "Phonetic Promotion Committee Records, 1919-1930 (PPCR)," 1-1-1. The details of this system are not clear. It is highly probable that it could have been the Braille system for the blind.

[244] Letter, Peill to Garland, April 8, 1920, CCCR, 1-1-8.

[245] Letter, Peill to Garland, July 6, 1919, CCCR, 1-1-8. Earlier in 1918, when the government leaned towards the adoption of the NPA, Peill noted that missionary publications should still be printed in *Mandarin Syllabary*. NPA had "bewildering details," which were made easier by the initial learning of *Mandarin Syllabary*. Acquisition of Wang's system *and* the government-supported Phonetic Alphabet was easier than the sole acquisition of the latter, at least according to the despondent logic of Peill. Sidney G. Peill, "No Competition with the Government," *The Chinese Recorder*, vol. 49 (1918), 207.

Syllabary, and still continued to serve in the Phonetic Promotion Committee, although he never assumed the position of the chairman again.[246]

With or without Peill, the momentum of the alphabet in the first few years was dazzling. In 1919 alone, pamphlets describing 39 symbols and the Hundred Surnames were printed and sold in the thousands. In the following years, the missionaries supplemented phonetic primers with phonetic cardboard games, syllabary charts, phonetic dictionaries with pictures, as well as Scripture readers, Beatitudes, and biblical parables. The missionary movement was pursuing its own cause while supporting the national phonetic movement.[247] (Fig. 3.4 and 3.5)

[246] Sidney G. Peill, "'Open Vision' in China," ibid., 157-159. Peill was replaced first by Darroch and then by Fong Sec as the chairman.

[247] *Proceedings of the Seventh Annual Meeting*, *60*-61; *Proceedings of the Eighth Annual Meeting,* 62.

Fig. 3.4 - "Illustrated posters to advertise the Phonetic Script and to show how the Bible meets the need of the individual and the nation."[248]

[248] *Proceedings fo the Eighth Annual Meeting,* 61. The posters are part of the collection of PPCR.

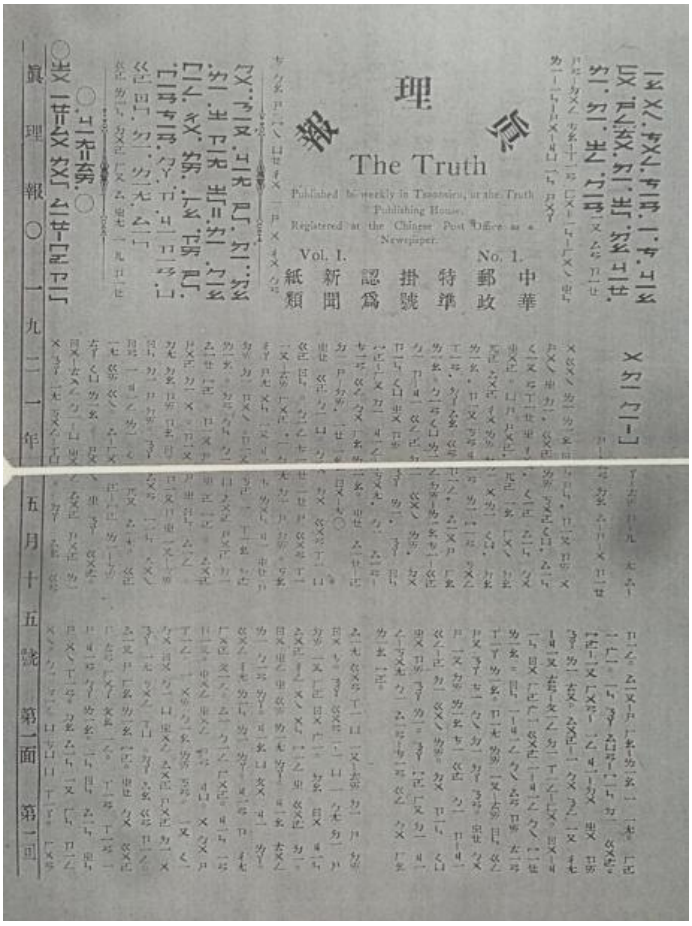

Fig. 3.5 - *The Truth*: Biweekly periodical published in the NPA (1921)[249]

In spite of a country-wide promotional campaign, there ensued linguistic problems that the NPA could not overcome. Linguistic diversity, from the beginning, constituted the greatest obstacle in the wide dissemination of the alphabet. In certain places, such as in Eastern Shandong, Hankou, and in Wu regions, missionaries were adapting the Phonetic Alphabet to local sounds, reportedly with "good success."[250] Especially in Shanghai and Suzhou, the PPC reported that it received an adaptation of the NPA in Wu languages from the members of the

[249] PPCR, 1-1-9.

[250] Bulletin no. 4 (Jun. 1920), 6, PPCR, 1-1-1; Bulletin no. 6 (Apr. 1921), 4, PPCR, 1-1-2.

Ministry of Education.[251] The technical details of their "adaptation" are not clear, but the report noted that these signs were not yet officially promulgated.[252] It is highly probable that these signs were based on the original NPA of the 1913 Conference. Regardless of the details, however, this was remarkable, for it showed that there were still multilingual vernacularists within the Ministry of Education. Also significant was the fact that the missionaries were the ones printing enhanced versions of the NPA for vernaculars in the 1920s —not the Commercial Press, not Zhonghua Press, not the government.

Not every vernacular language was as lucky, however. A report from Andong, Northern Jiangsu, noted the following in 1921: "In regard to the Chu-yin-tsi-mu [*sic*], its chief merit (universality) is also its chief difficulty. The words Antung [*sic*] people stumble over most are those that are not exactly phonetic according to their way of pronouncing. Any system will meet with the same difficulty as soon as it is taught in districts where the pronunciation varies."[253] In Henan, the student of the alphabet did not have a good grasp of the National Language, and therefore did not understand what they were reading, especially because of the interchangeability between the sounds *ci, chi, si, shi* (in *pinyin*).[254] As late as 1925, Peill still noted the difficulties of disseminating simple medical information in the villages of northern China, for the alphabet was not compatible with the vernacular speech.[255]

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[251] In a report, it was noted that the adaptation of the Phonetic Alphabet in Shanghai and Suzhou dialects was received from the members of the Ministry of Education, but was not promulgated by the ministry. China Continuation Committee, 1-1-9, 5. New signs were invented for dialects only in the 1930s.

[252] "Report of the Official Committee on the Promotion of Phonetic Script (1919)," CCCR, 1-1-9, 5.

[253] Bulletin no. 5 (Jan., 1921), 7, PPCR, 1-1-1.

[254] Bulletin no. 7 (Jul., 1921), 4, PPCR, 1-1-1.

[255] Sidney G. Peill, "Rural Medical Evangelism," *The Chinese Recorder*, vol. 56 (Jan., 1925), 32.

Besides the long-standing problem of vernaculars, printing also stood as a physical challenge. PPC was in touch with the Commercial Press and Zhonghua Press, the two largest publishing houses at the time, to help produce large print runs. The missionaries were counting on the government's ability to build an educational infrastructure to teach the NPA, but the lack of a strong government support was problematic for the success of the movement. For mass production, Dr. Fong Sec, then chairman of the Committee, urged the Commercial Press to buy a Monotype machine, but the agents of the Monotype company in Shanghai were reluctant to invent a machine for the National Phonetic Alphabet. The company asked for a down payment without offering a timeline for delivery, and the Commercial Press was understandably unwilling to make the investment.[256] The nation-wide success of the movement primarily relied on the government, but without a government willing to spend money, private publishing houses were the only agents of alphabetical transformation. The only institutions that consistently funded the movement were the Milton Steward Evangelistic Fund, Women's Boards of Foreign Missions, and British and Foreign Bible Society.[257] With that, the furthest the movement could go was to print the New Testament…

The initial years of excitement were illusory. The blatant lack of consensus on managing linguistic diversity, of finances to print and circulate primers, and of political organization to train teachers all resulted in shelving the project to a future date and concentrating the efforts on simplifying Chinese characters instead, the subject of the next two chapters. During the second half of the 1920s, the conditions exacerbated. Since the official announcement of the national pronunciation in 1918-19, there was a general dissent within the Preparatory Commission

[256] "Minutes of the Meeting of the Phonetic Promotion Committee, November 19, 1920," CCCR, 1-1-9.

[257] CCC also asked for funds from the Rockefeller Foundation, but it seems that it did not receive any. CCCR, 1-2-4.

towards it. In 1926, the Commission decided to reverse its earlier policy, and adopted the Beijing pronunciation as the new national pronunciation (*xin guoyin*).[258] This change landed a significant blow to the missionaries. The Phonetic Promotion Committee's records show that in the second half of the 1920s, missionary involvement was considerably less than the early years. In 1930, when the Nationalist Party (KMT), eager to build a party-state, re-appropriated the NPA and changed its name from the National Phonetic Alphabet to Phonetic Symbols (*zhuyin fuhao*), the alphabet became the main instrument of government propaganda; and in 1932, the government approved the Preparatory Commission's decision to adopt Beijing Mandarin as the national language.[259] By then, missionaries were no longer a part of the movement.

Conclusion

The optimism of the early 1920s, when reformers saw the NPA as the solution to all communication problems in China, was premature. True, the NPA could be used with the Morse Code instead of four-digit numbers, but what was the use of the NPA when telegraph operators could not speak Mandarin? Only in 1928 was the NPA experimentally implemented in Si-Tao Railway in Liaoning Province, but homophonous words decreased communicative efficiency.[260] With the impending Sino-Japanese war in 1937, the government chose to cancel the experimental program.[261] Inefficient communication fared better than cheap miscommunication

[258] Ping Chen, *Modern Chinese: History and Sociolinguistics* (Cambridge University Press, 1999), 20.

[259] See, ch. 8.

[260] Jiaotong bu pinyin dianbao yanjiu hui yiding, Jiaotong bu guiding guoyin dianbao fashi (May, 1928)

[261] Chin-chun Wang (Jingchun Wang), "The New Phonetic System of Writing Chinese Characters," *Chinese Political and Social Science Review*, vol. 13 (1929), 144-160. Homophonous characters and the lack of a working force capable of speaking one common language were the underlying factors for the termination of the program. Academia Historica, 017000001757A，Jiaotongbu, "Guoyin dianbao zanxing guize (1937)," 6-21-09-03. Ministry of Education's Dictionary for Common Characters in National Pronunciation (*guoyin changyong zidian*) was used

in wartime China. Briefly put, as I have quoted in the beginning of this chapter, Li Jinxi had noted in 1921 that "circumstances made [the NPA] necessary, and it simply had to be made and promulgated;" but in the end, it was never really used for telegraphic communication. Still, its failed application for telegraphy aside, the NPA did enjoy a revival in the 1930s, when the KMT changed its name to Phonetic Symbols, and employed it as an auxiliary writing system to teach the pronunciation of Beijing Mandarin, which the party designated as the only legitimate national speech.

The 1913 Conference was not a failure, but an unsuccessful compromise that underlines the political significance of late-Qing multilingual vernacularism. The years that followed the Conference showed that vernacular speeches were too numerous to suppress, and monolingualism only worked to antagonize vernacular communities. In the 1930s, multilingual vernacularism gained strength in China, and as the eighth chapters demonstrates, the Communists skillfully mobilized it with the aid of the Soviet Union's Latin Alphabet against the centripetal monolingual order of the KMT, imposed through the Phonetic Symbols. Perhaps an alphabet-based multilingual and multi-literary order could still be formed together with a national language?

In the meantime, however, reformers too were aware of the linguistic and physical limits of propagating a phonetically written national language. When Qian Xuantong, the staunch alphabet activist, wrote an influential article in 1922 and claimed that Chinese characters had to be simplified before being phoneticized, he was in part responding to the linguistic mess that the

by the telegraph operators. In addition to the NPA, an extra sign was used to designate the tone of a given character. In the case of homophonous characters, two or three more signs were used to designate the radical of the character. In other words, the telegraphic code in the NPA was still tied to the Chinese characters.

government and intellectuals had found themselves in.[262] The lack of an infrastructure to linguistically reskill the minds of the populace signaled a need to shift gears, and rationalize and simplify the characters themselves, which bracketed the problem of linguistic diversity, at least for the time being.

[262] Xuantong Qian et al. "Guoyu tongyi choubei hui di si ci da hui, liang ge zhongyao de yi'an: feichu hanzi caiyong xin pinyin wenzi an, jiansheng xianxing hanzi de bihua an," *Guoyu yuekan*, no. 1 (1922), 157-163.

Chapter 4

Cognitive Management: Intelligence Tests, Linguistic Engineering, and Mass Literacy in the 1920s

The widespread use of telecommunication technologies combined with increasing industrialization engendered an unprecedented demand for clerical labor and knowledge work in China. The various calls for adopting a phonetic alphabet was an outcome of an industrializing knowledge economy. As I explained in the first chapter, late-Qing information crisis triggered an empire-wide cognitive crisis, and some of the late-Qing intellectuals reassembled a new technological and epistemological order in which reform of the Chinese script signified a more efficient use of cerebral/mental labor (*naoli*). All the proposals for phoneticization, despite their disparate approaches to linguistic justice, shared the common desire to expedite access to information. This chapter and the next explore the other side of the coin in the search for efficiency—the rationalization of the Chinese writing system itself.

The precondition for an industrializing Chinese knowledge economy was literacy, the rate of which was not high in early twentieth-century China. Among the demands of the late-Qing scholars was a new education system, which could fulfill the increasing need for telegraph clerks, business accountants, notaries, scientists, or in short, recorders and producers of information. Mass literacy, with the universalist claim that access to information was access to freedom, was a new way of structuring information and labor, and it required a solid educational and linguistic infrastructure that could set information (and capital) free. I would like to suggest that the political economy of information is crucial to understand the history of mass literacy, for

it required measuring, calculating, printing, publishing, and on top of all linguistic and mental engineering that synced the individual mind with a national knowledge economy.[263]

Literacy was foremost of all a phenomenon of mental labor; and mass literacy was the metaphor for the proletarianization of human minds. The mass literacy movement that started in China in the 1920s targeted the cognitive worlds of an illiterate population. The leaders of the movement, such as James Yen (Yan Yangchu) and Tao Xingzhi, believed that illiteracy plagued close to ninety percent of the population, and was the greatest obstacle to building a nation. Their estimations about the percentage of illiteracy were in fact far off the mark. Recent studies have shown the complex set of practices surrounding literacy in late imperial China. In the late nineteenth century, for instance, Evelyn Rawski estimated that 30 to 45 percent of men and 2 to 10 percent of women "knew how to read and write."[264] Statistics aside, the meaning and purpose of literacy was also different in imperial times. There were centuries-old textbooks, such as the *Thousand Character Classic* (*qianzi wen* 千字文), extant since the sixth century, that circulated widely throughout the imperial times. *Classic* was the mythical history of the empire in a thousand characters, from the beginning of time ("Heaven and earth were dark and yellow / The

[263] There is a large literature on the "literacy question," which explores the cognitive repercussions of literacy. I believe that drawing a sharp distinction between orality and literacy is misleading, for it puts the emphasis on a form of "mental transformation" that is hard to ascertain. Instead, I find it more meaningful to engage with the political economy of mass literacy itself. See, Jack Goody (ed.), *Literacy in Traditional Societies* (Cambridge: Cambridge University Press, 1968); Walter J. Ong, *Orality and Literacy: The Technologizing of the Word* (London; New York: Routledge, 2002); David R. Olson, T*he World on Paper: The Conceptual and Cognitive Implications of Writing and Reading* (Cambridge: Cambridge University Press, 1994). Sylvia Scribner argued that literacy does not have any psychological effect, but it fell on deaf ears. See, Sylvia Scribner, *The Psychology of Literacy* (Cambridge: Harvard University Press, 1981). For a critique of Scribner, see, Jack Goody, *The Interface Between the Written and the Oral* (Cambridge University Press, 1987). An overview of the literature is offered by Collins and Blot, see, James Collins and Richard Blot, *Literacy and Literacies: Texts, Power, and Identity* (Cambridge: Cambridge University Press, 2003).

[264] Evelyn S. Rawski, *Education and Popular Literacy in Ch'ing China* (Ann Arbor: The University of Michigan Press, 1979), 140.

universe was vast and great") through the invention of writing ("In the age of the dragon masters … For the first time were devised the written characters") and princely fights of the Zhou and Shang dynasties ("Comforting the people, and punishing the guilty / Were the Fa of Zhou and the Tang of Shang"). This "textbook" embodied an imperial cosmology, in which the form and content, the medium and the message, were inseparable.[265]

Even though such literary primers were common, literacy was by no means imperially standardized. In contrast, it was a contextual phenomenon, spatially bound to a local society and economy. As the famous example goes, fishermen in a fishing village in China were more "literate" than scholar-officials when it came down to the names of fish. While scholar-officials had a thorough knowledge of classics with thousands of Chinese characters, localized economies of information demanded a specialized vocabulary for the sustainment and advancement of specific industries, such as fishery. A knowledge of 300 different characters for fish was sufficient to be considered "literate" in a fishing village in late imperial times.

Early twentieth-century scholars were remarkably similar to their imperial counterparts in their endeavor to condense tens of thousands of characters down to a basic set of thousand, but with one crucial difference. The "basic thousand characters" of the twentieth century replaced an imperial cosmology with an industrial one, and imperial subjectivity with modern citizenry. Twentieth-century literacy primers, in other words, were a new species. They served as a medium to create a nation with a basic vocabulary that all citizens had to be cognizant of. The ultimate goal was to engineer new minds, while standardizing mental labor to fuel a national knowledge economy. The combinations and permutations of a well-defined set of Chinese characters, the scholars believed, could standardize the acquisition of information throughout the

[265] The translation is taken from Xingsi Zhou, *Ch'ien tzu wen, The Thousand Character Classic: A Chinese Primer*, ed. Francis W. Paar (New York: F. Ungar Pub. Co., 1963), 7-9.

nation, and create a unified mental labor force that could be abstracted from its local conditions of existence. Fishermen, in other words, had to learn a set of characters that could sync them with a greater national economy of knowledge. As such, mass literacy, to borrow an oft-used terminology from Deleuze and Guattari, was the deterritorialization and reterritorialization of mental labor—its de-skilling, and re-skilling.[266]

Mass literacy was a matter of linguistic engineering. May Fourth scholars with their belief in the merits of science and technology unanimously agreed on the use of a simplified grammar in writing Chinese, but the sheer number of Chinese characters, which in a comprehensive dictionary would amount to more than 50,000, constituted a major barrier in the effort to create a literate population. The first line of work was thus to reduce the number of Chinese characters from a frequently-used set of approximately 10,000 to a most-frequently-used set of around 1,000, which could make a subject literate enough to fulfill its basic needs in a modern information society, such as accounting, letter-writing, or reading simple texts.

The method of selecting frequently-used characters was also different in this period. As opposed to imperial primers, modern textbooks were composed of characters carefully selected through a statistical analysis of large sets of linguistic databases, such as newspapers, novels, novellas, and so on. This linguistic engineering project that included a statistical measurement of character-frequencies was indeed one component of a wider "measurement movement" in Chinese education, and it was closely tied to the measurement movement that American behavioral psychologists spearheaded in the US. Indeed, most of the Chinese educational psychologists who advocated statistical measurements to effectively implement school education received training at the top institutions in the United States, such as Columbia Teachers College,

[266] Gilles Deleuze and Felix Guattari, *Anti-Oedipus: Capitalism and Schizophrenia*, trans. Robert Hurley, Mark Seem, and Helen R. Lane (Minnesota: University of Minnesota Press, 1983).

University of Chicago, and Stanford University, to name a few. Psychological and linguistic research conducted by Chinese psychologists and educators was thus remarkably similar to the research undertaken by their American mentors.

It was no coincidence that the American and Chinese behavioral psychologists who experimented with the acquisition of language and the psycho-physiology of reading and writing were also deeply and directly involved with the implementation of intelligence tests in schools and industries. Edward Lee Thorndike and Chen Heqin are telling examples. Thorndike was a pioneer in educational psychology at Columbia Teachers College, and was the leader of the measurement movement in education. He was personally involved in the development and implementation of intelligence tests in the American army during the First World War, and later in American schools. He was also the first to create a "graphometer" that measured the quality of one's handwriting, and one of the first to conduct the most comprehensive word-frequency analysis of English language. Chen Heqin, on the other hand, was a graduate of Columbia Teachers College. The first person to co-author intelligence tests in Chinese, Chen also conducted the most comprehensive frequency analysis of Chinese characters in the 1920s, which was immediately put to use for expanding mass literacy. The psychologists who prophesized the merits of intelligence tests also analyzed languages statistically, and tried to formulate efficient systems for writing. What does this convergence between the quantification of intelligence and the rationalization of language and writing indicate?

At stake for both Chinese and American psychologists was efficiency in mental labor. Both sides firmly believed that the knowledge work that all individuals were inherently capable of carrying out could be optimized to its utmost extent through psychological studies that quantified intelligence, and calculated the time and labor needed to read, write, and learn. Psychological

know-how, educators believed, was capable of optimizing cognitive labor on a mass scale, for which intelligence tests and scientific inquiries into literacy were indispensable. Intelligence tests, which measured intelligence solely on analytical thinking, provided the tools to organize mental labor through cognitive taxonomy (genius, intelligent, dumb, etc.); and psychology of literacy offered new methods to optimize mental labor through formulating the most efficient means of interacting with information. What was the optimum number of characters to be considered literate? What was the optimum use of punctuation marks to expedite mental information processing? What was the optimum direction of writing or the optimum shape of a character for a faster consumption and production of information? Chinese psychologists tackled all of these issues in creative ways, which constitutes the subject matter of this chapter and the next.

This chapter investigates the intertwined history of mass literacy and cognitive optimization in China in the 1920s. In doing so, I bracket the phoneticization project, for mass literacy during the 1920s and early 1930s was based primarily on the Chinese characters that allowed the intellectuals a temporary respite from the thorny issue of linguistic unity—a condition that changed in the following years when "national language" became a central component of mass literacy. I start off with a brief overview of "Taylorist Grammatology" in the United States to explain how the scientific premises of American behavioral psychologists resonated with Frederick Taylor's *The Principles of Scientific Management* (1911), which preached the use of scientific methodologies to increase efficiency and productivity in industrial economy through disciplining the bodies and minds of workers. American psychologists, the mentors of the first generation of Chinese psychologists, approached the question of the human mind from a mechanical perspective, and discarded the value of qualitative experience for the purpose of

inquiring into the mechanics of increased efficiency and productivity in mental work. Their scientific approach to language and writing was indicative of the industrializing knowledge economy in the United States, with its demand for a bigger and more efficient mental labor force.

American psychologists' involvement in the cognitive management of the nation was an inspiration for the Chinese psychologists, who experimented with the Chinese writing system using similar tools. Before I explain the significance of these experiments, the second section investigates the development and implementation of intelligence tests in China, the trajectory of which was closely tied to the American experience. Similarity did not signify imitation, however. Instead, it indicated common linguistic, psychological, and grammatological problems generated by a global and industrial knowledge economy that scientists from both sides were trying to come to terms with. Therefore, I reinterpret the history of intelligence tests as a practice that aimed to organize and optimize cognitive labor on a mass scale in order to meet the demands of this new economy. The use of intelligence tests in China never reached the level of implementation they enjoyed in the US, but nevertheless, it was indicative of the Chinese psychologists and educators' desire to organize cognitive labor through measurements in a modernizing information society.

The measurement movement was central to the expansion of mass literacy in China, and among the things that the educators measured was the number of Chinese characters. James Yen was a major figure in the Mass Education Movement that started in the 1920s and quickly spread across China. He was also among the first generation of educators who advocated the need to reduce the number of characters in order to create a basic vocabulary comprising around 1,000 characters. As a pioneer of rural reconstruction and mass literacy, James Yen devised "Thousand Character Primers" (*qianzi ke*) to expedite the process of learning in the countryside, in the cities,

and in the army. He later upgraded his primers according to the statistical measurements of Chen Heqin, the above-mentioned graduate of Columbia Teachers College, who also brought intelligence tests to China. Not surprisingly, these intelligence tests were also put to use by James Yen in his expanding school network in the Chinese countryside.

The third section of this chapter examines this linguistic measurement movement, of which James Yen's primers were the most famous product. Indeed, Thousand Character Primers were a peculiar microcosmic specimen of Chinese knowledge economy. They championed efficiency in learning, and were ideal for the creation of deterritorialized mental laborers who could be indoctrinated by certain national and moral values in the shortest time possible. The new literate subjects were capable of reading simple texts, writing letters, and accounting. In other words, they were capable of basic knowledge work. Some intellectuals, however, were unsatisfied by James Yen's primers. Was letter-writing, accounting, and a simple understanding of basic texts enough for literacy?

I devote the last section to a little-known publication of a well-known literary figure, Hong Shen, who articulated a cogent critique of James Yen's Thousand Character Primers with his own *1,100 Basic Chinese Characters*, published in 1935. Hong Shen's critique of James Yen was an effort to re-define the purpose of literacy, and to save literacy from solely being a project to satisfy the demands of an industrial knowledge economy tied to the politics of a party-state. The starting point for Hong and James Yen was in fact the same: they both used the same linguistic databases, and embraced the value of efficiency and productivity in language and communication. But their final products could not be more disparate. For Hong, James Yen's primers only helped create passive participants who mindlessly partook in an ideology that reproduced a capitalist system. Hong's *1,100 Basic Chinese Characters*, on the other hand,

directly influenced by Charles K. Ogden and Ivor A. Richards' *Basic English,* employed cognitive efficiency in a more critical way, and argued that his limited vocabulary could help create active agents instead of passive participants by instilling in the subject's mind an awareness of the socio-economic contradictions of global capitalism. In the highly politicized environment of the 1930s, Hong's project, I believe, despite its extremely limited circulation, was a precocious example of what I would like to call "radical knowledge work," articulated through a critical use of linguistic databases.

I. Taylorist Grammatology: Industry, Psychology, and Cognitive Efficiency in the United States

In 1911, Frederick Winslow Taylor (1856-1915) published one of the most influential texts of the twentieth century, *The Principles of Scientific Management*. In Taylor's words, the United States of America in the early twentieth century was plagued by "national inefficiency" in all matters of daily life, and the remedy to this epidemic was the development of a management culture based on scientific principles. Efficiency, productivity, and optimization were the passwords to a new industrial system that could eliminate labor-waste through the employment of scientific methods in managing the human-machine ecology. A colleague of Taylor, Frank Bunker Gilbreth (1868-1924), elaborated on Taylor's principles with his motion studies, fatigue studies, and time studies, all of which used laboratory methods and "measures supplied by psychology" to optimize the output of what he called "the human element" in industrial production.[267] Gilbreth treated motion, fatigue, and time as engineering problems, the mechanics of which could be best understood in a laboratory setting, where the human element's

[267] Frank H. Gilbreth, *Applied Motion Study: A Collection of Papers on the Efficient Method to Industrial Preparedness* (New York: Sturgis and Walton Company, 1917), 17.

physiological movements could be recorded. Scientific inquiries into the psychophysiology of labor, in Taylor and Gilbreth's formulation, could increase industrial productivity and cure the plague of inefficiency once and for all by disciplining the bodies and minds of the laborers, and synchronizing them with the tools of production.

Clerical labor was part of this industrial economy. Rising need for clerical labor in various industries combined with a movement for public education and mass literacy put pressure on language and its inscription as the primary means to supply industrial and educational demands, which were sometimes inseparable indeed. Gilbreth believed in the need to reformulate public education so that it could supply the demands of the industries. "The industrial world is becoming more and more definite in its requirements for industrial training," noted Gilbreth, "[which] is making it possible for all types of schools to give their pupils a training which enables them to fit into working conditions without the customary, preliminary jolt, and months and years of judgement." This training consisted of making every student "finger-wise," i.e., "training his muscles so that they respond easily and quickly to demands for skilled work."[268] "Finger-training" was a central component of "motion economy," which sought to save energy and time to increase productivity. Gilbreth even curated a "Fatigue Museum" to draw attention to the problem of fatigue-caused reduction of output in industries as well as schools, and showcased different kinds of chairs that helped reduce workers and students' fatigue.[269]

The industrial approach to education gained currency as one of the trends in American public education. The infamous Gary Plan was a case in point. Devised by Elbert H. Gary, one of the founders of U.S. Steel, Gary Plan was an educational system implemented in Gary, the main

[268] ibid., 52.

[269] Frank H. Gilbreth, *Fatigue Study: The Elimination of Humanity's Greatest Unnecessary Waste, A First Step in Motion Study* (New York: MacMillan Company, 1919), 104-108.

steel town in Indiana. In 1907, a new educational system known as the "platoon system" was designed by William Wirt, the appointed superintendent, in accordance with a Taylorist zeitgeist and a Dewey-esque "learn-by-doing" philosophy. Students were separated into platoons so that while one platoon was receiving education in academic subjects, another platoon received courses in industrial arts or physical education. Departmentalization of subjects and the scheduled circulation of students in the school building provided an economic model for the efficient usage of school space. Soon, the industrial success of Gary Plan was recognized by the Rockefeller Foundation which briefly introduced the Gary Plan into New York City in 1917-18. It was a highly controversial system, and for many, the Gary Plan was invented for the "training of the child to be an efficient cog in the industrial machine."[270]

The complexity of the debates about American public education aside, the industrialist view of education resonated finely with the early twentieth-century American psychology of education. Motion studies, finger training, and the scientific measures that Gilbreth drew on were already put under scientific scrutiny by American psychologists at leading institutions such as Columbia Teachers College, Brown University, University of Chicago, and Stanford University among others. Indeed, American psychologists played a leading role in building what I would like to call "the scientific principles of cognitive management," which experimented with bodily skills for clerical labor as well as with cognitive skills such as memory, language-acquisition, and learning in general for the purpose of optimizing mental labor. A mechanical understanding of the mind was crucial to quantify cognitive skills and to increase efficiency in intellectual work of

[270] *Proceedings of the Board of Aldermen of the City of New York from April 3 to June 26, 1917, vol. II* (Published by the Authority of the Board of Aldermen, 1917), 716. For an assessment of American higher education, its ties with corporate capitalism, and the rise of a professional-managerial intelligentsia in the early decades of the twentieth century, see, Clyde W. Barrow, *Universities and the Capitalist State* (Madison, Wis.: University of Wisconsin-Madison Press, 1990), Alvin Gouldner, *Future of Intellectuals and the Rise of the New Class* (New York: Seabury Press, 1979).

all sorts, including children as well as adults. Studies of language and writing came at the forefront of these experiments. Cognitive management inquired into the mechanics of language-acquisition, and endeavored to formulate a psychological theory of literacy that was capable of training a mental labor force prepared for the demands of an industrial knowledge economy. The underlying motivation in cognitive management was increased efficiency in the financial management of education, and the reconceptualization of students as workers — not only as potential future laborers for industries, but as mental laborers, knowledge workers whose acquisition and production of information had to be economized. It was the motto of economization that formed the intellectual foundation of psychogrammatology in the early twentieth-century America. Psychology of literacy and learning followed the same assumptions about efficiency and productivity that Frederick Taylor had championed in *The Principles of Scientific Management*.

Charles H. Judd, a psychologist at Yale, was among the pioneers of the scientific measurement movement in education, and his "hand tracer" was a metaphor for Taylorist grammatology. Hand tracer was an apparatus that recorded the movement of hands and fingers in the process writing. A pencil [D] was attached to a glass tube [C] that was then fixed on a light rod [B] and attached to the metacarpal bone at the back of the little finger [A]. (Fig. 4.1) In the psychologist Frank N. Freeman's words, there was a "division of labor" between the arm and the fingers in writing, and the purpose of the hand tracer was to record the movement of the hand and the arm, and then compare the records of that movement with the inscribed letters on paper.[271] The tracer was thus attached to the metacarpal bone which did not move with the other fingers while writing. The pencil on the tracer only recorded the hand-arm movements on the

[271] Frank N. Freeman, *The Teaching of Handwriting* (Boston: Houghton, Mifflin Company, 1914), 11.

same paper that received writing. Comparing the written letters and the tracer-record, Judd wanted to determine how much of the work was done by the fingers, and how much by the arm and hand, and thus to ascertain the optimum position of the arm and hand to produce the fine imprints of the fingers.

In order to determine the optimum level of efficiency in writing, the tracer abstracted meaning into data. The combination of letters or words, or the meaning produced thereof, was not Judd's concern. He was interested in the crooked line that abstracted the word "young" (fig. 4.2) into pure data through making visible its manual process of production. Data replaced meaning in linguistic writing; neurophysiology replaced thought.

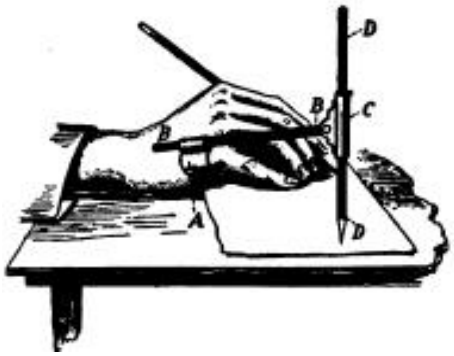

Fig. 4.1 — Charles H. Judd's hand tracer, reproduced from *Genetic Psychology for Teachers* (New York: Appleton and Company, 1909 [1903]), 171)

Fig. 4.2 — An example of the hand tracer's recording

What Judd did for writing, Edmund B. Huey did for reading. Huey became the pioneer of the field when he published "Preliminary Experiments in the Physiology and Psychology of Reading[272]" in 1898. He compared horizontal and vertical reading, calculated the speed of silent reading, and experimented with the importance of *irs and as etter of ord in ensin eanin* (first and last letters of words in sensing meaning). Huey conducted more in-depth research into these issues in the following years, and published his findings in his magisterial *Psychology and Pedagogy of Reading* in 1908. Expounding on the "hygiene of reading," Huey further tried to ascertain the ophthalmological principles in reading, and hence the physiological reasons for reading-fatigue. Drawing on similar research conducted by ophthalmologists and other psychologists, he tried to find the best form of typography to optimize the physiological energy of the eye. 1.5 millimeters for small-letters, for instance, was the minimum size an eye could work with without an increasing rate of fatigue. The thickness of letters was also an important factor in decreasing fatigue, and the minimum thickness had to be 0.25 millimeters.[273] These studies were echoed later by Chinese psychologists, as I will explain in detail in the next chapter.

Psychology of learning quickly evolved into a field of its own, dubbed as "educational psychology," and was spearheaded by Edward Lee Thorndike at Columbia Teachers College, where most of the Chinese psychologists received education. Thorndike was one of the leading figures in behavioral psychology, which concerned itself with what was measurable and

[272] Edmund B. Huey, "Preliminary experiments in the physiology and psychology of reading," *The American Journal of Psychology*, vol. 9, no. 4 (1898), 575-586. Huey's works were quickly complemented by others who explored the psycho-physiological processes of writing, such as: Edgar James Swift, "Studies in the Psychology and Physiology of Learning," *The American Journal of Psychology*, vol. 14, no. 2 (Apr. 1903), 201-251; Edgar James Swift, "The Acquisition of Skill in Type-writing — A Contribution to the Psychology of Learning," *The Psychological Bulletin*, vol. 1 no. 9 (1904), 295-305.

[273] Edmund B. Huey, *Psychology and Pedagogy of Reading* (New York: Macmillan Publishing, 1908), 406-407. Huey was mainly drawing on the work of Emile Javal in ophtalmology.

quantifiable, and thus eliminated subjective experience from psychological equation. An extremely prolific academic, Thorndike ventured into virtually every field that related to the psychology of learning, from intelligence tests to theories of mental fatigue. Like his contemporaries, he had an early penchant for standardizing handwriting, a field that flourished after his seminal invention, the "graphometer."[274]

Pioneering the studies in scientific management of education, Thorndike likened the educators' condition with respect to handwriting to that of students of temperature before the invention of thermometer, and invented the graphometer in 1910 to be used for children from fifth to eighth grades and for adult women.[275] Teaching handwriting conformed with Taylorist principles of efficiency. On his scale between 0 and 18, typewriters occupied the highest ranks (15 to 18), and he believed that children who reached the quality of 13 should be taught to write in a typewriter, for the effort to increase one's writing quality from 13 to above 14 required serious labor, and was thus uneconomic.[276] (Fig. 4.3-4.4)

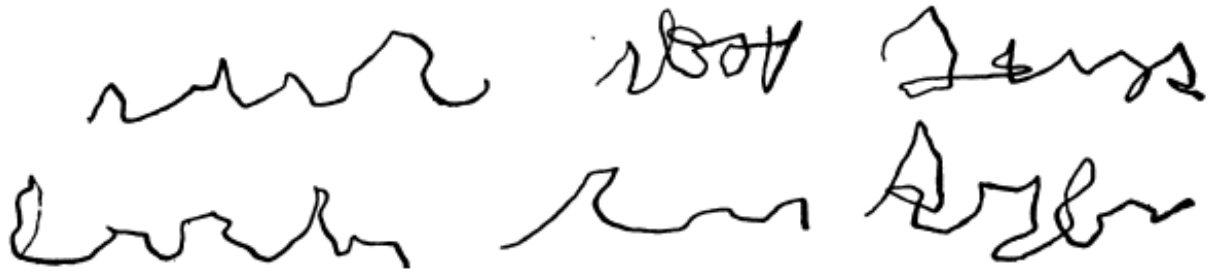

Fig. 4.3 — A handwriting with "zero merit." (Taken from Thorndike, *Handwriting*, 16)

[274] For a detailed study of the history of handwriting in the US, see, Tamara P. Thornton, *Handwriting in America: A Cultural History* (New Haven: Yale University Press, 1996).

[275] Edward L. Thorndike, *Handwriting* (New York City: Columbia University Teachers College, 1912), 1-2.

[276] ibid., 36-39. He further measured the correlation between the quality of handwriting and intelligence, which he found to be nil.

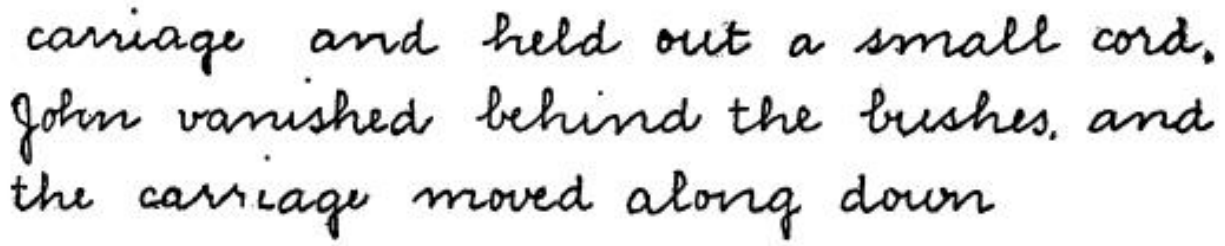

Fig. 4.4 — A handwriting sample that Thorndike rated 14

A rival handwriting scale was soon invented by Leonard P. Ayres, the director of the Division of Education of the Russell Sage Foundation from 1908 to 1920, whose statistical studies aimed to increase efficiency and rational calculation in the decisions of the Council of National Defense during the First World War.[277] Ayres was a statistician by training, and during his tenure at the Russell Sage Foundation, he put his knowledge to practice also in linguistic statistics and scientific management of education. He was one of the first figures to have come up with a basic English vocabulary, composed of a thousand most-frequently used words, which influenced not only the famous "Basic English" of Charles K. Ogden and Ivor A. Richards, but also Chinese linguists and psychologists, as will be explained later.[278] In 1912, Ayres published *A Scale for Measuring the Quality of Handwriting of School Children*, which adopted "legibility" as the criterion.[279] Thorndike had used the judgements of readers to come up with a scale of general merit, while Ayres measured "the amount of time required to read with a given degree of

[277] William J. Breen, "Foundations, Statistics, and State-Building: Leonard P. Ayres, the Russell Sage Foundation, and U.S. Government Statistics in the First World War," *The Business History Review,* vol. 68, No. 4, Experts, War, and the State (Winter, 1994), 451-482.

[278] Leonard P. Ayres, *A Measuring Scale for Ability in Spelling* (New York: Russell Sage Foundation, Division of Education, 1915).

[279] In 1915, Ayres also devised *A Scale for Measuring the Handwriting of Adults*, issued by Russell Sage Foundation.

accuracy a given amount of matter written in the handwriting being studied."[280] Soon, new handwriting scales were invented by various psychologists for practical use in schools, although none of them reached the fame of Thorndike's or Ayres'.[281]

Be it "merit" or "legibility," both of the scales along with many others that were invented later shared a common assumption about the purpose of writing. Manifestations of individual psyche in writing simply did not matter. The value of writing did not lie in an individual's unique psyche, but in the capacity of the individual to produce a standard form of legible writing, accountable data. As opposed to a contemporaneous movement known as graphology that analyzed personalities through specimens of handwritings, Thorndike and others eliminated "personality" from the hand's movement on paper.[282] There was no mind-body dichotomy, just motor skills necessary for recording information; there was no introspective imagery, only letters on the paper. Writing, in other words, lost significance as a mental process, and became an automated motor skill that behavioral psychology helped optimize. What was left of penmanship was machinery, pure and simple.

II. Cognitive Management: Intelligence Tests and Educational Measurement Movement

When Chinese psychologists, such as Chen Heqin, Liu Tingfang, Zhang Yaoxiang, and Zhang Zexuan, among many others, arrived at Columbia Teachers College, psychology of efficiency was the trademark of the discipline, with numerous studies on handwriting, word-

[280] Leonard. P. Ayres, *A Scale for Measuring the Quality of Handwriting of School Children* (New York: Russell Sage Foundation, 1912), 5.

[281] An index to handwriting scales from the 1910s and 20s is given in Charles K. A. Wang, *An Annotated Bibliography of Mental Tests and Scales, vol. II*, Beijing: Catholic University Press, 1940, 264-278.

[282] On graphology in America, see, Thornton, ibid., 108-141.

counts, speed of writing, typing, reading, and most importantly, measuring and quantifying intelligence.[283] The use of intelligence tests, first invented by Alfred Binet and Théodore Simon in France in 1906, reached its zenith in the United States during the First World War, and they were managed by the same psychologists who championed the rationalization of writing, such as Edward Lee Thorndike. It was no coincidence that the Chinese psychologists who devised the first literacy tests, analyzed character-frequencies, and experimented with punctuation marks and the simplification of Chinese characters were also deeply involved in the promotion of intelligence tests for the reorganization of cognitive labor on a national scale.[284]

The gripping history of the quantification of intelligence has been the subject of countless works that explained intelligence tests' intimate relationship with eugenics, philosophical inquiries into the essence of the human mind, and the highly racialized techniques of phrenology, cephalometers, and anthropometers.[285] While in agreement with these works, I would like to suggest that the desire to invent a scale to measure human intelligence rose out of the industrialist need and desire to optimize mental labor through reorganizing it on a mass scale according to innate cognitive skills. Alfred Binet's works provide the best example. The earlier publications of Alfred Binet, the famed inventor of the first intelligence scale, show that Binet was concerned more with *travail intellectuelle* than the quantification of intelligence. He was

[283] Chinese psychologists trained at Teachers College were publishing widely in Chinese on the intersection between psychology and education from the 1920s through the 1940s. For a bibliographical account of their publications, see Ying Kao Lin, "Academic and Professional Attainments of Native Chinese Students Graduating from Teachers College, Columbia University (1909-1950)" (PhD diss., Teachers College, Columbia Uniersity, 1951).

[284] Liu Tingfang, Zhang Yaoxiang, and psychological experiments concerning the use of punctuation marks and simplification of Chinese characters will be the subject of the next chapter. In this chapter, I restrict my analysis to character-frequency tests and intelligence tests.

[285] Stephen Jay Gould, *The Mismeasure of Man* (New York: Norton, 1981); John Carson, *The Measure of Merit: Talents, Intelligence, and Inequality in the French and American Republics, 1750-1940* (Princeton: Princeton University Press, 2007).

especially troubled with the problem of mental fatigue. His book *La Fatigue Intellectuelle* (1898) was one of the first to make mental work and fatigue a central problem in experimental psychology.[286] The invention of intelligence tests, I therefore suggest, was the product of an information age that redefined humans' relationship to knowledge work and mental labor. Measurement of intelligence was part of an intellectual movement to *manage* the mind, both in terms of optimizing physiological givens, such as the eyes and the hands, and of creating the optimum social environment that corresponded to the participants' naturally determined mental capabilities.

Intelligence tests were popularized in the US, especially during and after the First World War, when they were entangled with the American military-industrial complex and philanthropic organizations. But anthropometric testing had a longer history in America. Having grown out of nineteenth-century phrenology, anthropometry enjoyed popularity especially in post-Civil War America, and was complemented by mental tests in the 1890s, particularly under the auspices of James McKeen Cattell, a sojourner psychologist who had studied with Wilhelm Wundt in Leipzig before his posts at University of Pennsylvania and Columbia.[287] Although Cattell's tests ignited the movement, they were not embraced by the psychological community at large, and not until Lewis M. Terman, a Stanford psychologist, completed the Revision of the Binet-Simon

[286] Alfred Binet and V. Henri, *La Fatigue Intellectuelle* (Paris: Schleicher Frères, 1898). Before the publication of this work, Binet was conducting research on various topics related to the psycho-physiology of intellectual work, such as the manifestation of mental duress in the flow of bloodstream, or the effect of intellectual work on the consumption of bread in schools. See, A. Binet and N. Vaschide, "Influence du travail intellectuel, des émotions et du travail physique sur la pression du sang," *L'année Psychologique*, vol. 3 (1896), 127-183; A. Binet, "Note relative a l'influence du travail intellectuel sur la consommation du pain dans les ecoles," *L'année psychologique*, vol. 5 (1898), 332-336.

[287] Michael M. Sokal, "James McKeen Cattell and Mental Anthropometry: Nineteenth-Century Science and Reform and the Origins of Psychological Testing," in Michael M. Sokal (ed.), *Psychological Testing and American Society, 1890-1930* (New Brunswick and London: Rutgers University Press, 1987), 21-45; Michael M. Sokal, "The Origins of the Psychological Corporation," *Journal of the History of the Behavioral Sciences* 17 (1981): 54-67.

Intelligence Scale in 1916, known as the Stanford-Binet, did intelligence tests become widely used in the US. [288]The Stanford-Binet also introduced the most famous concept in intelligence tests: intelligence quotient (IQ), the ratio between mental age and chronological age.[289] Terman's IQ turned intelligence into a standardized, universal, and quantifiable measure applicable to humans of all ages and races.

With the onset of the Great War, psychological testing and measurement became an integral part of American military management. In 1917, one of the sub-committees formed under the Psychology Committee of the National Research Council, headed by Major Robert M. Yerkes, prepared procedures for the psychological examination of new recruits in the army.[290] Given the number of officers, "group mental tests" were devised to measure up to 500 people at one sitting. Apart from the Army Alpha Test, which was used for literate recruits, an Army Beta Test was also devised to measure the mental capabilities of illiterates or non-English speakers. The statistical work for these mental tests undertaken by psychologists that the reader is now familiar with, such as Lewis M. Terman from Stanford, Edward L. Thorndike from Columbia Teachers College, and others.[291] In 1918, a school of Military Psychology was established in Georgia to

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[288] The first psychologist to have developed an interest in Binet's intelligence scale for institutional use in testing feeble-minded children was Henry Herbert Goddard. See: Leila Zenderland, "The Debate over Diagnosis: Henry Herbert Goddard and the Medical Acceptance of Intelligence Testing," in Michael M. Sokal, ibid., 46-74.

[289] "IQ" was first introduced by William Stern, but Terman was the first to apply it to mental tests. See: Henry L. Milton, "Lewis M. Terman and Mental Testing: In Search of the Democratic Ideal," in Michael M. Sokal, ibid., 95-112: 99. For a comparative early history of intelligence tests in America and France, see, John Carson, *The Measure of Merit*.

[290] Robert M. Yerkes, "Report of the Psychology Committee of the National Research Council," *The Psychological Review*, vol. 26, no. 2 (March 1919), 87. The members of the Psychology Committee were James R. Angell, James McKeen Cattell, Raymond Doge, Shepherd I. Franz, G. Stanley Hall, Walter Dill Scott, Carl E. Seashore, Edward L. Thorndike, John B. Watson, Guy M. Whipple, Robert M. Yerkes and John W. Baird. Also see, James Reed, "Robert M. Yerkes and the Mental Testing Movement," in Michael M. Sokal, ibid., 75-94.

[291] The members of the Committee on the Psychological Examination of Recruits were Walter V. Bingham, Herbert J. Goddard, Thomas H. Haines, Lewis M. Terman, F. Lyman Wells, Guy M. Whipple, and Robert M. Yerkes, the chairman. The list is given in Yerkes, "Report of the Psychology Committee of the National Research Council," 87.

train personnel, and by the end of the year, a total of 1,726,000 men went through psychological examination "(a) to aid in segregating the mentally incompetent, (b) to classify men according to their mental capacity, and (c) to assist in selecting competent men for responsible positions."[292] Yerkes was satisfied with the results: "The service of psychological examining in the army has conspicuously advanced mental engineering, and has assured the immediate application of methods of mental rating to the problems of classification and assignment in our educational institutions and our industries."[293] After the successful employment of Army Alpha Intelligence Examination, the National Research Council devised a new system of mental tests for educational institutions. The General Education Board complied, and in 1920, complete scales were finalized and issued by the same psychologists — M. E. Haggerty, Lewis M. Terman, Edward L. Thorndike, Robert M. Yerkes and Guy M. Whipple.[294]

The Chinese psychologists were impressed by the American advancements in mental engineering. Intelligence tests had implications for settling disputes over racial differences, creating a better army, reforming social problems, devising better employment strategies, and creating a scientific system of education.[295] As opposed to their use for racial segregation or a justification of racial bias in the US, Chinese psychologists used intelligence tests to argue for

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Also see, Edward Thorndike, "A Standard Group Examination of Intelligence Independent of Language," *Journal of Applied Psychology*, vol. 3, no. 1 (1919), 13-32. On the distinction between Alpha, Beta, and Individual Tests, see, Unites States War Department, *Army Mental Tests: Methods, Typical Results and Practical Applications* (Washington, DC, 1918), 4. For a detailed study of American military intelligence tests, see Carson, ibid., 197-219.

[292] Yerkes, "Report of the Psychology Committee of the National Research Council," 88-90.

[293] ibid., 92.

[294] Guy M. Whipple, "The National Intelligence Tests," *The Journal of Educational Research,* vol. 4, no. 1 (Jun., 1921), 16-31.

[295] Shicheng Liao, "Zhili ceyan de lishi," *Xinli*, vol. 1, no. 1 (1922), 94.

racial equality in intelligence.[296] A telling example of this concern was Lin Chuanding's 林傳鼎 work, *A Historiometric Study of Thirty-Four Eminent Chinese* (1939), which used a complicated — and rather inadequate — set of biographical data to calculate the IQ's of "Chinese geniuses," all of whom were famous historical figures, such as Li Bai and Liang Qichao. Even the title of Lin's book mirrored the American studies, especially James McKeen Cattell's statistical work on "Eminent Men." At stake was the cognitive sovereignty of the Chinese nation, and the methodology offered by intelligence tests became the ground on which Chinese psychologists claimed an equal status with Western nations.[297]

Refuting racism-induced orientalist misconceptions about intelligence was secondary to the historical need to optimize mental labor. The first Chinese intelligence test was devised by Chen Heqin 陳鶴琴 and Liao Shicheng 廖世承 in 1922, and was geared towards educational needs. Chen and Liao were among the first generation of Chinese psychologists who gained a degree in the United States. Chen Heqin (1892-1982), a native of Zhejiang, graduated from Tsinghua in 1914, and pursued higher degrees first at Johns Hopkins and, starting in 1917, at Columbia Teachers College, where he studied with the leading behavioral and educational psychologists of the period, such as Edward Thorndike, Paul Monroe, and John Dewey. Also an active manager of kindergartens, Chen prolifically experimented and published on educational and children's psychology throughout his long career that spanned six decades in mainland China. A pioneer in the field of psychology, he also took part in the mass literacy movement under the KMT, and

[296] H. H. Hsiao, "The Mentality of Chinese and Japanese," *Journal of Applied Psychology*, vol. 13, (Feb. 1929), 9-31.

[297] Chuanding Lin, "Tang Song yilai sanshi si ge lishi renwu de chuanji," in *Lin Chuanding Wenji*, ed. Shoudu shifan daxue jiaoyu kexue xueyuan (Beijing: shoudu shifan daxue chubanshe, 2008). His use of the term "Eminent Chinese" in the English translation of the title was a direct reference to James McKeen Cattell's earlier work: "A Statistical Study of Eminent Men," *Popular Science Monthly*, vol. 62 (1903), 359-377.

later under the CCP in the 1950s. Liao Shicheng (1892-1970), on the other hand, was a colleague of Chen from Tsinghua, who pursued a higher degree in educational psychology at Brown University. Together with Chen, he played a leading role in the development of psychology as a discipline in China in the 1920s. Chen was invited by Guo Bingwen, the president of Southeastern University in Nanjing, to teach psychology at Southeastern University and Nanjing Teachers College. At Nanjing Teachers College, Chen Heqin and Lu Zhiwei, another psychologist from University of Chicago, formed the first department of psychology.[298] When Liao Shicheng joined them at Nanjing Teachers College, Chen and Liao set out to write the first Chinese intelligence test.

Given the priority accorded to education, it was not surprising that the calculation of human intelligence came to be intimately connected with the psychology of literacy. Chen and Liao claimed that there were two kinds of intelligence tests. One measured natural intelligence, the other, one's abilities. Natural intelligence depended on the amount of peripheral nerves in one's brain. It was completely innate, and had nothing to do with the environment.[299] "Ability" to memorize, observe, imagine, and create, on the other hand, was not predetermined, and could be improved with the right tools, such as new primers or new writing systems. Intelligence tests sorted out the naturally inclined from the naturally uninclined; literacy tests devised techniques to increase one's ability to learn.[300] Implemented on a national scale, psychological experiments could offer the organizational tools to manage cognitive labor on a mass scale.

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[298] Lu Zhiwei wrote his dissertation on the conditions of retention, revisiting Hermann Ebbinghaus' theory of memory. He was also one of the pioneers of intelligence testing in China. He translated the Revised Binet-Simon intelligence tests into Chinese in 1924. See, Zhiwei Lu, *Dingzheng bina-ximeng zhili ceyan shuomingshu* (Shanghai: Commercial Press, 1924).

[299] Heqin Chen and Shicheng Liao, *Zhili ceyan fa* (Shanghai: Commercial Press, 1921), 6.

[300] ibid.

The blueprint for Chinese mental tests came from the above-mentioned American psychologists.[301] Chen and Liao devised different tests for use depending on the subject's age or level of literacy.[302] Chen and Liao believed in the necessity to separate school classes according to levels of intelligence, create a special class for gifted students, and use tests for school entrance examinations, all practices being carried out in various ways in American institutions.[303] The first mental tests for entrance examinations were put to use at Nanjing Teachers in 1920. In 1921, Peking Teachers College also started using intelligence tests; and soon, Peking Women's Teachers College followed.[304]

The educational measurement movement and the development of intelligence tests intensified when Dr. William McCall from Columbia Teachers College visited China in 1922-23 to devise an intelligence test in collaboration with Chinese educators and psychologists, some of whom he knew from Columbia. McCall was one of the most ardent supporters of the

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[301] The first mental tests in China were undertaken in 1918 in Canton by Dr. J. W. Creighton. The second was given at Tsinghua in 1920. See: W. H. Pyle, "A Study of the Mental and Physical Characteristics of the Chinese," *School and Society*, vol. VIII, no. 192 (August 31, 1918), 264-269; G. D. Walcott, "Intelligence of Chinese Students," *School and Society*, vol. XI (1920), 474-480. But the systematic use of mental tests started with Chen Heqin and Liao Shicheng, and were based on translations from English-language tests. The books that Chen and Liao referred to in their translations were: Marion R. Trabue and Frank P. Stockbridge, *Measure Your Mind: The Mentimeter and How to Use it* (New York: Doubleday Page and Company, 1920); Clarence S. Yoakum and Robert M. Yerkes, *Army Mental Tests* (New York: Henry Holt and Company, 1920); Rudolf Pintner and Donald G. Paterson, *A Scale of Performance Tests* (New York; D. Appleton and Company, 1917); Guy M. Whipple, *Manual for Mental and Physical Tests* (Baltimore: Warwick and York, 1914); Harold O. Rugg, *Statistical Methods Applied to Education* (Boston: Houghton Mifflin Company, 1917).

[302] Pictorial completion tests, absurdity tests, maze tests, crossing-out, and form-digit recognition were for illiterate adults and kids; and language tests were used for literate individuals. Language tests were fill-in-the-blanks questions such as, "The weather in summer is … than … winter," or "A table has four …". Or they measured figurative speech, such as "brother-sister," "up-down," "strong-weak," etc. Chen and Liao, ibid., 60-61, 93-94. The first non-verbal intelligence test was invented by Liu Zhan'en. See: Herman Zhan'en Liu, *Non-Verbal Intelligence Tests for Use in China* (New York: Teachers College, Columbia University, 1922). Liu was another psychologist trained under Edward L. Thorndike, William McCall, Henry Ruger, and Ella Woodyard.

[303] They were especially inspired by the "Freshman Tests" at Columbia University.

[304] The correlations are given in Herman Chan-en Liu (Liu Zhan'en), *Non-Verbal Intelligence Tests for Use in China*, 6.

psychological measurement movement, which, he believed, had a particular philosophy that he condensed into fourteen theses, and explained in detail in his magnum opus, *How to Measure in Education* (1922).[305] The first of his theses was Thorndike's famous dictum: "Whatever exists at all, exists in some amount." McCall despised "quality" in education: "There is never a quantity which does not measure some quality, and never an existing quality that is non-quantative," he noted, "[e]ven our halos vary in diameter." Personal initiative, judgement of relative values, leadership, poetic appreciation, in short, every product of "mental machinery" could be quantitatively measured.[306]

McCall stayed in China for a year and worked with the National Association for the Advancement of Education (*zhonghua jiaoyu gaijin she*), headed by Tao Xingzhi, another graduate of Columbia Teachers College, and a pioneering figure in the promotion of mass literacy. Tao and McCall both had strong faith in the value of adopting scientific measurements to take progressive leaps in education, and they were further aided by other psychologists, including Chen Heqin, Lu Zhiwei and Liao Shicheng.[307] Under the direction of Lu Zhiwei, the Revised Binet-Simon Intelligence Test was devised, and 1400 male and female students between the ages of 3 and 12 were selected from cities and districts surrounding Nanjing for the first implementation of the test. In the following years, intelligence tests were used in schools in

[305] William McCall, *How To Measure in Education* (New York: The Macmillan Company, 1922), 3-18.

[306] ibid., 4-5.

[307] Tao Xingzhi, the head of the National Association for the Advancement of Education 中華教育改進社, Guo Bingwen, the president of Southeastern University Nanjing Teachers College, and professors from Nanjing Teachers College participated in the implementation of tests. Apart from Chen Heqin and Liao Shicheng, Zhu Binkui 朱斌魁，Yu Ziyi 俞子夷, Xu Zeling 徐則陵，and Zhang Shiyi 張士一 also participated. See, Lu Zhiwei, *Dingzheng bina-ximeng zhili ceyan shuoming shu* (Shanghai: Commercial Press, 1924).

Beijing, Nanjing, and Shanghai as a measure for mental classification, and during the war, in the army and the police force.[308]

The intimate connection between intelligence testing, mass literacy, and industrialization is detectable in the achievement of James Yen. A colleague of Tao Xingzhi, James Yen spearheaded the establishment of the Chinese Mass Education Association (*zhonghua pingmin jiaoyu cujin hui*) in 1923, and initiated the Mass Education Movement. Starting in 1927, James Yen and the Chinese Mass Education Association started employing intelligence tests to separate classes, form groups for different purposes, to chart the future accomplishments of any given student, to determine what student is fit for what kind of industry, to measure how hardworking a student is (depending on his/her level of intelligence), and to discover "genius."[309] As newly drafted soldiers were coming into the territories where the movement was flourishing, James Yen and his colleagues also started visiting the barracks and giving intelligence tests to soldiers to train appropriate officer-teachers for the army. In one instance, James Yen noted that sixty of the best officers were selected as teachers for the division, given a "rather strenuous process of mass-education methods of teaching," which included the use of projectors and cards instead of books. "This mass method [without books]," James Yen wrote in a letter, "has proved most effective

[308] The use of intelligence tests changed radically in 1939, as the KMT used them as a measure for cognitive monitoring more than cognitive management. See: Shanghai Municipal Archives, R48-1-775; Neizheng bu (Ministy of Interior Affairs), *Putong jingcha zhili ceyan zhidao lu* [A Guidebook for Common Police Force Intelligence Tests] (Neizheng bu, 1939); Xiaorong Xiao 蕭孝嶸 and Zuyin Ding 丁祖蔭, *Jingguan zhihui ceyan* [Intelligence Tests for Police Officers] (Neizheng bu, 1940). Xiao Xiaorong closely followed the use of mental tests in Germany and the US, and published books on psychological tests under the sponsorship of the Military Affairs Commission during the war. The militarization of psychological testing remains beyond the inquiry of this chapter. See: Xiaorong Xiao, *Shiqi xinli* [Psychology of Morale] (Junshi weiyuanhui ganbu xunliantuan yinxing, [date unspecified]); Xiaorong Xiao and Zuyin Ding, *Deguo xinli zhan*, translated from Ladislas Farago, *German Psychological Warfare* (Chongqing: Commercial Press, 1943).

[309] Zhonghua pingmin jiaoyu cujin hui, *Pingmin xuexiao jiaoyu ceyan fa* (Shanghai: Commercial Press, 1928), 206-231. They used the Revised Binet-Simon Intelligence Test, Group Intelligence Tests, and Non-Verbal Intelligence Tests. See, Zhonghua pingmin jiaoyu cujinhui, *Dingxian shiyan gongzuo tiyao* (Beiping: Zhonghua pingmin jiaoyu cujin hui, 1934), 53-58. From 1927 to 1934, 44 different tests were used at MEM schools.

with the soldiers and aroused a tremendous amount of interest among the whole Division. … One of them remarked that if all the soldiers could be given a chance for mass education China would have an entirely different type of army."[310]

The measurement movement in education continued uninterrupted in the following years, as measurements offered the psychological and technical know-how to nationally manage education and spread literacy. Intelligence tests were just one aspect of the greater measurement movement that aimed to reorganize cognitive labor on a national scale and economize it through adjusting the tools of learning to mental skills.[311] Quantification of intelligence was a powerful method for the organization of labor according to age and innate cognitive skills, but it did not help develop one's abilities, which was the territory of education. The penchant for measurement that fueled the Mass Education Movement (MEM) was also instrumental in changing the patterns of studying and learning, as the prophets of modern education deemed economy of time in learning was a prerequisite to expand literacy. The dominant obstacle, however, was the overwhelming number of Chinese characters. On what basis was the number of Chinese characters going to be reduced to economize their acquisition and increase the mental productivity of literate subjects? Who was going to choose the characters? And who could confirm that a given set of basic Chinese characters was more appropriate than thousands of other potential sets? With the onset

[310] "Mass Education in China," *Pacific Affairs,* vol. 1, no. 2, (Jun., 1928), 24.

[311] The scientific measurement movement in education was not limited to intelligence tests. Zhou Xuezhang, a graduate of Columbia Teachers College, was asked by the National Association for the Advancement of Education to devise a "Chinese Composition Scale" for the Association's use in schools. "Composition scales" were a new development in the US, again spearheaded by Edward L. Thorndike. Zhou collected 10,000 samples from 54 schools in five provinces, and together with his colleagues at Columbia Teachers College, chose 33 samples that covered the entire range from "no merit" to "excellent merit." 450 sets of these samples were then distributed to 450 individuals, who were mostly teachers from Chinese schools, literary figures with national reputation, students in the Department of Chinese of Southeastern University Teachers College, and some Chinese graduate students in the US. See: Henry Hsüeh Chang Chou (Zhou Xuezhang), *The Measurement of Composition Ability* (New York, 1923), 22-35.

of the Mass Education Movement, psychologists and educators all saw the vast number of Chinese characters as a psychological barrier to mental efficiency. The leaders of MEM and Thorndike-trained Chinese psychologists were among the members of the crisis-resolution team.

III. Knowledge Work: James Yen, Mass Education Movement, and Thousand Character Primers

The measurement movement in education utilized psychological techniques of measurement to reorganize mental labor on a mass scale, and to create a social and educational environment that would be most suitable for cognitive optimization. Efficiency was the keyword, and instruction based on psychological experimentation and know-how, the educators believed, would produce the best results for the cognitive development of the nation. Cognitive management through psychological experimentation was simultaneously accompanied by statistical analyses of characters to devise the most efficient method to sync the population with the information that surrounded it. The end result was Thousand Character Primers (*qianzi ke*). Just as intelligence tests were reorganizing the society based on cognitive skills, Thousand Character Primers were providing the necessary informatic fuel to create knowledge workers to satisfy the needs of a nascent knowledge economy.

One of the first systematic attempts to reduce the number of characters was undertaken by the above-mentioned James Yen, who employed intelligence tests in the classrooms and the barracks.[312] James Yen's use of intelligence tests echoed the American uses of tests in schools and the army. Indeed, James Yen's Mass Education Movement was sponsored by the Rockefeller

[312] The publication of textbooks for Chinese schools started earlier, and some of the counts were undertaken by the leading publication houses of the era. See, Christopher Reed, *Gutenberg in Shanghai: Chinese Print Capitalism, 1876-1937* (Vancouver: UBC Press, 2004), 161-202.

Foundation's "China Program" from 1934 to 1945.[313] From one perspective, MEM's philosophy of education was not much different from what Gilbreth wanted to achieve in public education, i.e., economizing education while creating productive laborers for new industries. Familiarity with new technologies and the acquisition of the necessary skill-set to become efficient workers were the main pillars of MEM's philosophy.[314] With its commitment to the scientific principles of cognitive management, MEM was an unprecedented effort to prepare the biggest mental labor force that would drive the engines of Chinese industrial knowledge economy forward.

James Yen is remembered as a pioneer in mass education and rural reconstruction. A native of Sichuan, James Yen worked in France and studied at Yale, and on his return to China in 1920, he co-founded the Chinese Mass Education Association, and launched MEM to turn all Chinese into literate citizens. James Yen's fame is largely due to the "Ting Hsien Experiment," the rural reconstruction experiment in Ding County, Hebei Province, which demonstrated that life in rural China could be socially, culturally, and economically developed through an implementation of his philosophy of education.[315] The Ting Hsien Experiment ran from 1926 to 1937, and was supported by the Rockefeller Foundation. It also became a model for rural reconstruction across the world in France, Mexico, Philippines, US, Cuba, Colombia, and Ghana.[316] James Yen and his MEM enjoyed popularity not only among the higher echelons of the Nationalist Party —

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[313] Letter from Y. C. James Yen to John D. Rockefeller 3rd, May 22, 1944, Rockefeller Archive Center, Office of the Messrs. Rockefeller records, series G, box 3, folder 16. http://rockefeller100.org/items/show/5034 (accessed on June 12, 2016).

[314] For an in-depth study of the Mass Education Movement and James Yen's role in it, see: Kathryn Alexia Merkel-Hess McDonald, "A New People: Rural Modernity in Republican China" (PhD diss, University of California, Irvine, 2009).

[315] Charles W. Hayford, *To The People: James Yen and Village China* (New York: Columbia University Press, 1990).

[316] Xiangxiang, Wu. *Yan Yangchu Zhuan: Wei quanqiu xiangcun gaizao fendou liushi nian [A Biography of James Yen: Sixty Years of Struggle for the Global Rural Reconstruction]* (Taipei: Shibao wenhua chuban, 1981), 12-13.

Generalissimo Chiang Kai-shek himself invited James Yen to foster rural reconstruction across China — but also among the international community. Most remarkably, Pearl Buck took a personal interest in his rural experiments, which she popularized in the English-speaking world with *Tell the People: Talks with James Yen about the Mass Education Movement* (1945).[317]

James Yen's long career started in Boulogne, France. Dispatched by the YMCA as part of an effort to provide services to Chinese migrant laborers in France during the war, James Yen arrived in Boulogne in 1918. As Zhong Yurou explains in detail, his initial contact with illiterate Chinese laborers ignited his life-long desire to expand literacy. This was the first time that James Yen, with the help of Paul Fugh (Fu Baochen), devised a *Thousand Character Primer* 千字課. The primer was influenced by the traditional *Thousand Character Classic* 千字文 but involved a list of characters that were more applicable to vernacular uses.[318] James Yen's *Thousand Character Primer* later became the foundation on which he launched the Mass Education Movement in China, and by the end of the 1920s, James Yen upgraded his primers according to the statistical work undertaken, as fate would have it, by Chen Heqin, the Columbia graduate who brought intelligence tests to China.

Chen Heqin was the first to do a comprehensive statistical word-count in Chinese, taking his American counterparts as his model. Apart from Leonard P. Ayres' study mentioned above, others had undertaken similar counts, the most comprehensive of which was Edward Thorndike's word-count in English with a total database of 4,565,000 words, within which he had counted

[317] Pearl Buck, *Tell the people: Talks with James Yen about the Mass Education Movement* (New York: John Day Company, 1945).

[318] Yurou Zhong, "Script Crisis and Literary Modernity in China, 1916-1958" (PhD diss, Columbia University, 2014), 34-35. Kathryn Alexia Merkel-Hess McDonald, ibid., 58. "Thousand Character Primer" was compiled in 1921, and published in 1922. In 1923, it was republished with 1286 characters. In 1925, a primer for urban workers and one for farmers were published with 1302 and 1138 characters, respectively.

10,000 individual words.[319] Chen Heqin was inspired by these examples, and conducted the first systematic character-count in Chinese in a similar manner.[320] He created a database of 554,478 characters from various newspapers, journals, primary school textbooks, novels, and other miscellaneous publications, and counted 4261 most frequently-used individual characters. In 1928, he listed these characters according to their frequencies, and published his finding.[321] In 1929, Ao Hongde conducted a very similar study and came up with 4339 characters, supplementing Chen's list with 78 more.[322] In 1930, Wang Wenxin further analyzed 601,345 characters from student essays and books. Wang's goal was slightly different than Chen and Ao, in that he explicitly stated his purpose as "economizing learning (*jingji xuexi*)." Department of Educational Research at Zhongshan University had calculated that the time necessary to learn all the characters encountered in Chinese education consumed 362,880 minutes. Wang wanted to maximize the learning ability of students by separating the number of characters according to different school grades, and determining how many characters should be taught from first through sixth grade.[323] He collected a total of 207,246 characters from student essays written in sixty-four schools in Guangdong, Guangxi, Zhejiang, Jiangsu, and Hebei provinces. He added another 303,941 characters to the list by including language textbooks published by Commercial

[319] Heqin Chen, "Yutiwen yingyong zihui," in *Chen Heqin quanji*, vol. 6 (Nanjing: Jiangsu jiaoyu chubanshe, 1987), 78.

[320] Accordig to Chen's account, the first word-counts in Chinese were undertaken by missionaries Pastor P. Kronz and Southhill, who compiled a total of 4000 most commonly used characters.

[321] He later did another count with 348,180 characters, and supplemented the list of 4,261 with another 458. This second count, however, was lost.

[322] Hongde Ao, "Yutiwen yinyong zihui yanjiu baogao — Chen Heqin shi yutiwen yingyong zihui zhi xu," *Jiaoyu zazhi*, vol. 21, no. 2 (1929), 77-101; Hongde Ao, "Yutiwen yinyong zihui yanjiu baogao (xu) — Chen Heqin shi yutiwen yingyong zihui zhi xu," *Jiaoyu zazhi*, vol. 21, no. 3 (1929), 97-113.

[323] Wenxin Wang, *Xiaoxue fenji zihui yanjiu* (Hankou: Minzhi shuju, 1930), 4.

Press, Zhonghua Press, and World Press.[324] Wang was even precise in the labor-time involved in the calculation of character frequencies: it took him and ten other secretaries 314 days and 4 hours to count 511,187 characters in total. At last, they counted 2954 characters used in student essays, and 4279 characters used in textbooks.[325]

Wang's precision with the amount of labor he and his co-workers have put in to make the calculations reflected a performative aspect as well to the practice of counting. Chinese psychologists and educators who were using new techniques to optimize the Chinese writing system were also self-consciously carving out a space for themselves in the new professional division of labor in social sciences. The technical know-how and the immense amount of labor that the psychologists have put into counting, measuring, and displaying information empowered them as a new class of workers who had the technical know-how to optimize the system at hand through making it visible and legible. In that respect, they were not unlike the digital humanists of the twentieth century.

Based on Chen Heqin's character-frequencies, James Yen devised his primers with an idealized vision of what a literate subject meant for the development of a modern nation-state. Mass literacy entailed the standardization of mental labor as well as the indoctrination of the individual with a certain subject-position in modern society. James Yen concocted three different primers for rural farmers, urban workers, and soldiers, with different contents that would reflect

[324] Wang, ibid. 10-11.

[325] wang, ibid., 13-14. Around the same time, Peng Renshan 彭仁山 and Du Zuozhou 杜佐周 also came up with similar word-counts. See: Zhi Li, "Minzu zhongxin zhi xiaoxue changyong zihui yanjiu," *Jiaoyu yanjiu (guangzhou)*, no. 60 (1935), 1-32. Another word-count that yielded a larger number (5,262) was undertaken by Zhuang Zexuan, again a graduate of Columbia Teachers College, see, Zexuan Zhuang, *Jiben zihui* (Shanghai: Zhonghua Press, 1930). Zhuang also invented what he called "Scientific Writing Method" (*kexue fangfa zi*), which represented every sound according to an alphabetical and numerical value that corresponded to the position of mouth. "Yi," for instance, was A4b Be G4g. see: Ming Tian, "Wenzi geming yu ladinghua," *Qinghua zhoukan*, vol. 43, no. 11 (1935), 47.

(or impose) a presupposed set of moral behaviors for farmers, workers, and soldiers. The primers for soldiers, for instance, included among its basic vocabulary "the army must be followed with loyalty 從軍要忠心," whereas those for farmers taught the evils of opium-smoking, with a vocabulary that included "poison" (*du* 毒) and "smoke" (*yan* 煙).[326] Yen's thousand-character primers reflected his desire to create subjects who would be literate enough to recognize their duty for the state, become morally aware of their place in society with respect to their social class, and handle basic clerical work such as accounting and recording data.

James Yen's literate students, whether children or adults, were in certain respects similar to the workers that the Gary Plan in the US was intended to create. Frederick T. Coats from Rockefeller Educational Board had summed up the purpose of Gary Plan as follows: "We do not desire to make poets or orators of these people. We do not cherish even the humbler ambition to raise up among them statesmen, lawyers, scientists or medical men, of whom we have an abundant supply."[327] To what extent were James Yen's primers different from the Rockefeller ideal, especially given that his Mass Education Movement was funded by the Rockefeller Foundation? Was the Mass Education Movement and the measurement movement that it held in high regard a means to enlighten the people, or was it complicit in producing a cog in the industrial (and, in this case, rural and military) machine? It would be unfair to claim that James Yen was operating solely with the support of American dollars, especially because he actively resisted the demands of the U.S. State Department after the establishment of the Joint

[326] Zhonghua Pingmin Jiaoyu Cujin Hui, *Shibing qianzi ke* (Beiping: Zhonghua pingmin jiaoyu cujin hui, 1929 [1928]), 15; Zhonghua Pingmin Jiaoyu Cujin Hui, *Nongmin qianzi ke* (zhonghua pingmin jiaoyu cujin hui, 1931), 8. Merkel-Hess McDonald analyzed in detail the differences between these textbooks, and their contents including a variety of subjects such as morality, hygiene, sanitation, agriculture, advertising, accounting, and others. See: Merkel-Hess McDonald, ibid., 65-80.

[327] *Proceedings of the Board of Aldermen of the City of New York from April 3 to June 26, 1917*, 716.

Commission on Rural Reconstruction in 1948, which had requested that Yen emphasize agricultural and rural industrial developments over education.[328] Nevertheless, not everyone was satisfied with the basic characters that James Yen used in his primers, and the most coherent critique was articulated by Hong Shen, a rival literary engineer of Chinese, whose work is the subject of the last section.

IV. "Basic Chinese": Hong Shen and Radical Knowledge Work

In 1935, Hong Shen, an acclaimed author, dramaturge, and film director, published a little-known book, *1100 Basic Chinese Characters*. One of the recipients of the Boxer Indemnity Fund, Hong had studied in the United States after receiving a degree at Tsinghua University in 1916. After a stint at Ohio State University, he decided to study drama at Harvard under George Pierce Baker. Hong came back to China in 1922, and became a prolific writer of plays and film scripts. In 1930, he joined the League of Left-Wing Writers, a group of famed literary figures who advocated a socialist future for Chinese literature. In the early 1930s, while he was enjoying a prolific writing career, Hong developed a keen interest in "Basic English," a linguistic project created by Charles K. Ogden and Ivor A. Richards, which reduced English language to 850 basic words. Hong taught Basic English for a year before publishing his own *1100 Basic Chinese*

[328] The collaboration between MEM and Rockefeller Foundation was not free from conflict either. The relations deteriorated especially towards the end of the war, and the Foundation terminated the "China Program" in 1945. Although the Joint Commission on Rural Reconstruction was founded in 1948 with the support of the State Department, the initial contacts between James Yen and the US were not amicable, since the State Department's vision of rural reconstruction differed from Yen's. See, "Memorandum regarding the political trends in China and the progress of the Mass Education Movement in China," Rockefeller Archive Center, Office of the Messrs. Rockefeller records, series G, box 3, folder 17, January 14, 1949. http://rockefeller100.org/items/show/5036 (accessed on Jun 12, 2016).

Characters, but Hong's was not merely an emulation of Ogden and Richards' work.[329] Rather, Hong cleverly used Basic English as a springboard to offer a critique of knowledge work that was promoted and produced by James Yen's primers. *1100 Basic Chinese Characters* was one of the earliest critiques of the industrial knowledge economy that had been developing in China, and the first to use statistical linguistics to upset communicative patterns, rather than reproduce them. It was the first political manifesto for communication engineering, which came at a time when James Yen was collaborating with the KMT, as the party was strengthening its grip on political power, and increasing censorship on any publication that was even remotely anti-establishment.

First, a brief background on Basic English. According to Ivor A. Richards' account, the idea of a Basic English arose while he was co-authoring the book *The Meaning of Meaning* with Charles K. Ogden in the 1920s. Ogden realized that when describing a given word, the same words would come up over and over again, which suggested that a limited number of words, a subset of English, could semantically produce all that the language was capable of expressing. Basic English, in the words of Richards, was going to be "an all-purpose language and serve trade, commerce, technical education, as well as news, the diffusion of science, politics, general knowledge, and the discussion at simple levels of all the common affairs of man."[330]

Basic English was the perfect example of a weapon in the global language wars. Invented primarily by Charles K. Ogden, Basic sought to eliminate the redundancies of English, replace verbs with "operatives," and reduce its vocabulary to 850 words, all in order to turn English into

[329] Hong taught Basic English for a year before writing Basic Chinese, and he wrote that Basic English was a big influence on him. Shen Hong, *Yi qian yi bai ge jiben hanzi shiyong jiaoxue fa* (Shanghai: Shenghuo shudian, 1935), 16.

[330] I. A. Richards, "Basic English and Its Applications," *Journal of the Royal Society of Arts* (June 2, 1939), 737.

an international language that would supersede all other languages, including the artificial ones such as Esperanto.[331] "What the world needs most," noted Ogden, "is about 1,000 more dead languages — and one more alive."[332] On the one hand, Basic was a statistical project that relied on word-counts, measurement of redundancies, and formulation of an optimum number of words to be used in communication. It was therefore highly informed by the word-frequency analyses conducted by American statisticians and psychologists. Ogden, in his narrative of the history of Basic English, especially acknowledged the works undertaken by Edward L. Thorndike and John Dewey.[333] On the other hand, Ogden and Richards were also concerned with meaning in language, and with the connection between thought and language.[334] They did not want to simply create language-machines, but humans who would be able to express their thoughts accurately using a limited amount of vocabulary. BASIC (British, American, Scientific, International, and Commercial) English aspired to become the sole international token of linguistic exchange, and it had a significantly stubborn history in China.

As the two men were working on a basic vocabulary for English, Richards made a trip to China that cemented his desire to finalize Basic English. When he was a visiting professor at Tsinghua University in Beijing, he noted the aspiration of the Chinese students to read the most complicated pieces of English literature, in spite of their difficulties in learning the basic elements of the language. The number of English words taught at Chinese schools reached seven

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[331] C. K. Ogden, *Basic English: A General Introduction with Rules and Grammar* (London: Kegan Paul, Trench and Trubner, 1930); C. K. Ogden, *The System of Basic English* (New York: Harcourt, Brace and Company, 1934).

[332] C. K. Ogden, *C. K. Ogden and Linguistics* (London: Routledge/Thoemmes Press, 1994), 229.

[333] C. K. Ogden, *Basic English: International Second* Language (New York: Harcourt, Brace & World, Inc., 1968), 55.

[334] C. K. Ogden and I. A. Richards, *The Meaning of Meaning: A Study of the Influence of Language upon Thought and of the Science of Symbolism* (New York: Harcourt, Brace and Company, 1923).

thousand, which produced confusion rather than clarity. Richards saw Basic English as the solution to the limited communication between the English-speaking world and China. China, in other words, became the main target of Basic English.[335]

850 words were enough, according to Ogden, to express anything in English, with the exception of scientific subdisciplines, for which a supplemental list of words would be necessary. There were only sixteen verbs in Basic English: give, get, take, put, come, go, keep, let, make, say, see, send, do, have, be, and seem. The only auxiliaries allowed were "will" and "may." In order to eliminate semantic redundancy, certain less-frequently-used words were dropped to leave room for more-frequently-used words. There was no need for "difficult," when "hard" sufficed. Who needed "husband" or "wife," when "male," "female," "man," and "woman" were already in use? Was "kid" or "child" really necessary, when one could simply say "son" and "daughter"? The core of 850 words signified efficiency by means of semantic precision. Basic English was communication engineering at its best, although it was not quite clear why certain words were chosen over others. As Michael Gordin asks, why was "umbrella" essential, whereas "dance" unnecessary?[336]

Eliminating redundancy in word-use facilitated the acquisition of language and posed English as the scientific heir to a long-forgotten Babel, but its promise of efficiency in communication also turned it into an imperialist tool. "Empires of the futures are the empires of the mind," claimed Winston Churchill in 1943, referring to Basic English.[337] That same year, the

[335] Richards, ibid., 737-738.

[336] Michael Gordin, *Scientific Babel: How Science was Done Before and After Global English* (Chicago: University of Chicago, 2015), 297.

[337] Rodney Koeneke, *Empires of the Mind: I. A. Richards and Basic English in China, 1929-1979* (Stanford: Stanford University Press, 2004), 187.

British War Cabinet started promoting Basic English, since it could save the English language from falling prey to pidgins in regions across the world that were still under British occupation.[338] Linguistic engineering turned out to be a precision weapon for the empire.

Its imperialist impulse aside, Basic English had a long and complicated career in China. Richards' interest in promoting Basic in China continued through the 1930s, and the Chinese Ministry of Education thought highly of the project, since it would save a significant amount of time and money in teaching English to children. The war that started in 1937, however, brought an abrupt end to the ministry's plans, as guns and bombs silenced Basic. The teaching of Basic still continued in Yunnan and Tianjin during the war, however, with the financial support of the Rockefeller Foundation.[339]

Basic English was conducive to the development of Hong Shen's *1100 Basic Chinese Characters*, but Hong's project had a more radical component that Basic English or even its first-hand cousin, James Yen's Thousand Character Primers, lacked. All of the projects — Basic English, Thousand Character Primers, and 1100 Basic Chinese Characters — shared a common techno-scientific origin that championed linguistic efficiency to optimize mental labor, and highlighted the need to simplify linguistic complexity to increase intellectually productive output in the shortest amount of time. Their goals, however, were very different. Basic English was a project to turn English into an international language, and apart from inspiring Hong Shen, it did not have a direct impact on Chinese language in any way. James Yen's Thousand Character Primers, on the other hand, aimed to standardize mental labor according to his philosophy of education, which held that workers, farmers, and soldiers were the pillars of a modern Chinese

[338] Gordin, ibid.

[339] I. A. Richards, *Basic English and Its Applications*, 744-745.

nation, and thus had to be cultivated as such in the shortest time possible. For James Yen, linguistic engineering provided the tools to create a populace loyal to his liberal philosophy and the nation-state. Especially during the 1930s, James Yen and MEM closely allied with the Nationalist Party (KMT), and Yen complemented his primers with Phonetic Symbols (*zhuyin fuhao*), which was an alphabetical project supported and sponsored directly by the KMT as a measure against anti-party movements, as the eighth chapter will explain. Hong Shen's "Basic Chinese," in contrast, was an effort to conduct "radical knowledge work" through engineering a new set of Chinese characters that differed from James Yen's.

Hong Shen was not pleased with James Yen's use of linguistic engineering. "Basic Chinese" as formulated and practiced by James Yen and his primers concealed a cognitive complicity in the extant system of thought. The primers not only advocated well-defined boundaries between different social classes, but also perused a simplified linguistic pattern that served to reproduce a wider cognitive one. The frequent use of characters, according to Hong, represented a particular cognitive structure, along with a socio-economic and political system, that words helped produce and reproduce; and as long as the same frequent characters were taught in schools, there was no way to snap out of the habitual patterns of communication. Statistical reduction of language was complicit in reproducing an extant cognitive system, for it treated frequency as inherently more meaningful than rarity.

Hong Shen perspicaciously addressed this problem when he published *1100 Basic Chinese Characters* in 1935. Hong admired statistical linguistics and communication engineering as much as James Yen, but he was more invested in changing the patterns of thought rather than reproducing them, and in creating a subject that is aware of its own socio-economic conditions rather than a docile population that conformed with the system. First of all, Hong believed that

the words in James Yen's primers were not enough to represent one's emotions and thoughts, nor were they enough to read a newspaper and understand the world around. There were a lot of characters that signified "things" (*shiwu*) but not enough that referred to life-behaviors (*shenghuo xingwei*). He acknowledged that Yen's primers were still a big improvement from the traditional *Thousand Character Classic*, which was extremely redundant from a modern linguistic perspective, but still too narrow.[340] They were good enough to express one's simple thoughts, but not enough to understand the "struggle for survival" (*shengcun jingzheng*). As mentioned earlier, Hong was a member of the League of Left-Wing Writers, and although he maintained a certain distance with the Chinese Communist Party, he believed that a socialist terminology allowed a critical view of the conditions of social existence that James Yen's vocabulary was unable to convey. Using James Yen's primers, one would not be able to understand "Imperialism's Economic Invasion of Semi-Colonies," 帝國主義對於次殖民地的經濟侵略 or "International Contradictions and the Second World War" 國際間的矛盾和第二次世界大戰. All that James Yen's primers enabled was letter-writing or daily bookkeeping and accounting (*jizhang xiexin*). In practice, studying these primers amounted to little more than *Thousand Character Classic*.[341]

Hong Shen's critique was accurate, targeting the very premises on which James Yen et alia devised and revised primers. James Yen's primers aimed to economize the time necessary to create literate subjects who were designated as citizens with particular duties to the nation. On the one hand, using James Yen's primers, filial sons and daughters could communicate with their families through simple letters; on the other other hand, they could work as simple recorders of

[340] Shen Hong, "1100 ge jiben hanzi shiyongfa," *Dongfang zazhi*, vol. 32, no. 14 (1935), 6.

[341] ibid.

data, as financial and bureaucratic scribes. The cognitive world that James Yen's primers manufactured was the ideal literate subject who worked for an existing economy of thought.

Hong Shen, on the other hand, wanted to turn people into politically aware subjects rather than bookkeepers or simple letter-writers. For Hong, word-frequencies reflected the extant economy of thought, and sticking to them simply helped reproduce it without questioning its conditions of existence. In order to escape from statistical boundaries, Hong chose his 1100 characters very carefully. While he made use of the available character-frequency lists, he was mindful about creating a radical vocabulary that could upset the economic structures of thought.

Hong's semantic usage of words was in line with Basic English. Just like Ogden and Richards, Hong was against the use of non-basic words if the same meaning could be delivered with the use of basic words. For instance, he eliminated *mei* 妹 (younger sister) from his vocabulary, because younger sister could be represented by "female younger brother" *nüdi* 女弟. The words for "husband" (*fu* 夫) and "wife" (*qi* 妻) were simply "male" (*nan* 男) and "female" (*nü* 女), just as in Basic English. Using Hong's basic characters, one had to say "I am his younger brother" instead of "he is my elder brother" because "elder brother" (*ge* 哥) was not part of the basic characters. There was no "island" (*dao* 島)," but "a small mountain in the middle of a sea." No "monk" (*heshang* 和尚) but "one who has removed hair and is pursuing (religious) practice."[342]

In choosing his basic characters, Hong was motivated by a radical terminology. Although he took out the simple words such as "monk," "younger sister," "husband," and "wife," he deemed it necessary to keep the character *zhi* 殖, not only because people had "reproductive organs"

[342] ibid., 9-11.

(*shengzhiqi* 生殖器), but because China was a "semi-colony" (*ci zhimindi* 次殖民地), and people needed to know what "imperialism's economic invasion of semi-colonies" meant.[343] He also introduced the word landlord (*dizhu* 地主), instead of *tianzhu* 田主, since the former was part of a socialist vocabulary with a particular political meaning. For Hong, literacy meant political participation in the world, rather than passive reproduction of knowledge economy. The distinction he drew between the two kinds of literacy was nothing less than that between knowledge workers and radical thinkers.

Hong Shen's *1100 Basic Chinese Characters* had an ambiguous reception. Chao Yuen Ren, the inventor of Romanization, claimed that it was a valuable addition to simplification efforts.[344] Eugene Shen (Shen Youqian), a Stanford psychologist, on the other hand, thought that Hong's replacements were simply "ridiculous."[345] Valuable or ridiculous, Hong's primer did not reach the masses like James Yen's, for it did not have a financial support like the Rockefeller Foundation. Still, his intelligent comments on knowledge work, I believe, raised a critical question: how can linguistic efficiency upset the extant patterns of communication and thought, and act as the foundation of an alternative cognitive future?

Conclusion: Towards the Futures of Chinese

The 1920s was a critical decade. For many, efficiency in mental labor was the crux of the problem that plagued the Chinese nation. James Yen's MEM was the most famous response to the information age that demanded a new organization of labor, and a new method to

[343] ibid., 6-8.

[344] Yuen Ren Chao, *Mandarin Primer: An Intensive Course in Spoken Chinese* (Cambridge: Harvard University Press, 1964 [1948]), 14-16.

[345] Youqian Shen (Eugene Shen), "Hanzi de jianglai" *Jiaoyu zazhi,* vol. 27, no. 5 (1937), 410.

synchronize the individual minds with a nationalizing economy of knowledge. Mass literacy, I contend, was the project to create a unified mental labor force, and it was highly informed by the psychological theories that sought to optimize mental labor through statistical analyses of languages. James Yen devised his Thousand Character Primers at the intersection of a growing industrial knowledge economy, intensifying demands on mental labor, and psychological know-how.

Hong Shen's work, on the other hand, remains as a rare and overlooked specimen in the history of Chinese linguistic experiments, but it reminds us that the future of knowledge work in China was far from singularly defined. Indeed, Hong Shen penned his work at a time of political polarization, when the future of literacy and the Chinese writing system was under attack from multiple sides. Especially during the 1930s, knowledge work was intertwined with party politics, and in this increasingly polarized environment, the Chinese script occupied a particularly precarious position.

Psychologists succeeded in reducing the number of characters to fuel cerebra, but what kind of a future awaited the Chinese script itself? The 1920s and 1930s were the most uncertain decades. On one side of the table was the "simplifiers" who wanted to reduce the number of strokes in Chinese characters to simplify manual and mental information processing. On another side was the "Phonetic Alphabetizers" who believed more in the merits of a phonetic alphabet (*zhuyin zimu*) than Chinese characters. On a third side was "Romanizers" who shared a common ground with Phonetic Alphabetizers, but thought that the Roman Alphabet was a better choice than the nativist graphics of the Phonetic Alphabet that I explained in the first chapter. On yet another side was "Latinizers," the communist revolutionaries who believed in an internationalism founded on Latin (not Roman!) letters. On the fifth side of this strange

pentagonal arena stood the more conservative nativists who were content with the Chinese characters as they were. The future of the Chinese writing system relied on the geometry of balance struck between these different sides as well as the political projects of the KMT and the CCP. The following chapters explore these technological projects with their distinct politics.

Let us start with the simplification of Chinese.

Chapter 5

Architects of the Page: Text Mining, Creative Destruction, and Simplification of Chinese Characters

> I still haven't reached forty, but my nerves are already abnormally fatigued. Yet, [attributing it to] learning is just too simplistic … isn't it all because of worshipping Chinese characters![346]
>
> Qian Xuantong

> If any device along psychological or purely physical line can shorten the time and lessen the labor even by a very little, the aggregate advantage will far outweigh the trouble of investigation.[347]
>
> Yao-Chiang Chang (Yaoxiang Zhang)

Anarchy reigned in Chinese grammatology in the 1920s. The sacred law of increased efficiency and productivity was ubiquitous in all debates concerning the future of the Chinese writing system. Should Chinese be written horizontally instead of vertically? Should punctuation marks be used in writing? How about extra signs, such as lines drawn next to proper names, or side signs that were used for emphasis? What about paragraphs? Or numbers? Should Chinese adopt Arabic numerals or continue using Chinese ones? And perhaps most importantly, what was the future of Chinese characters themselves?

The techno-spatial architecture of the page, the grounds of cognitive production and mental work, was under scrutiny. Punctuation marks, for instance. Hu Shi 胡適, Qian Xuantong 錢玄同, Liu Fu 劉復, Zhu Xizu 朱希祖, Zhou Zuoren 周作人, and Ma Yuzao 馬裕藻 appealed to the Ministry of Education with a proposal in 1919.[348] They divided punctuation marks (*biaodian*

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[346] Xuantong Qian et al. "Guoyu tongyi choubei hui di si ci da hui, liang ge zhongyao de yi'an: feichu hanzi caiyong xin pinyin wenzi an, jiansheng xianxing hanzi de bihua an," *Guoyu yuekan*, no. 1 (1922), 159. 年紀還不滿四十，而神經已經異常衰弱，學識却是極其淺薄，… 何莫非拜漢字之賜!

[347] Yao-Chiang Chang (Yaoxiang Zhang), "Factor Affecting the Speed and Clearness of Reading Chinese," MA Thesis, Columbia University, 1919 (unpublished), 1.

[348] Yuzao Ma et al., "Qing banxing xinshi biaodian fuhao yian (xiuzheng an)," *Jiaoyu congkan,* no. 2 (1920), 1-8.

fuhao) into "signs" (*biao*) and "points" (*dian*). "Points," such as period, comma, colon, and semi-colon, broke sentences into grammatical units, so that the reader could discern the place of each unit and its relationship to others. "Signs," on the other hand, such as question marks, quotation marks, exclamation points, dashes, ellipses, parantheses and extra-signs to denote personal names and book titles signified the nature (*xingzhi*) of words or sentences; they were suggestive of utterance and meaning, not directly related to grammatical structure. Concomitant with the proposal came Hu Shi's landmark publication *Outline of the History of Chinese Philosophy* (1919), the first book in Chinese that made a systematic use of punctuation marks.[349]

A new organization of the page to increase mental productivity and efficiency was reminiscent of the Fordist assembly line. In order to increase productive output and optimize the mental management of information, sentences were divided into pieces by punctuation marks. Linguistic information was thus separated only to be reassembled by the reader's mind in a radically more efficient manner. In techno-spatial reconstruction, punctuation marks constituted only one part of the greater architecture composed of the direction of writing, graphic shapes of numbers, use of paragraphs, etc. These techno-spatial architectural tools were cognitive devices, employed to optimize mental labor within and through the confines of a given page.

Zhang Yaoxiang described the situation as succinctly and clearly as possible. One of the first modern Chinese psychologists to uphold experimentalism as the key to improving human cognitive skills, Zhang received his master of arts from Columbia Teachers College in 1919, went back to China in the early '20s, and founded the first journal of psychology, unambiguously titled *Psychology* (*xinli*), in 1922. "The increasing part played by reading in the life of civilized man is a striking characteristic of modern culture," noted Zhang and went on: "The man of to-

[349] Shi Hu, *Zhongguo zhexueshi dagang* (Shanghai: Commercial Press, 1919).

day may be defined as a reading animal. … When everybody reads, and some do scarcely anything else, and the amount to read increases daily, it is highly desirable that reading should be made as easy and rapid as possible."[350] Zhang Yaoxiang was indeed one of the first psychologists to experiment with the direction of reading, punctuation marks, extra-signs, side-signs, numbers, and the absence/presence of paragraphs. Reading was merely "a psycho-physiological operation" for him.[351] Zhang and other radical May Fourth scholars desperately needed new devices of inscription to help the reading animal spend the least amount of time and labor to extract data from the page, insert it into its cerebrum, and make *sense* out of it. On top of the list came the Chinese characters.

Chinese characters occupied a particularly obstinate place during these decades of paginal reorganization. While some scholars were in support of phoneticization for what they believed was ultimately more efficient, many were against an unconditional surrender to the alphabet. True, the characters were too complicated with dozens of strokes, but instead of severing all ties with the past for the sake of efficiency, wasn't "simplification," i.e., reducing the number of strokes in a character, a better option?

Simplification of Chinese was an informatic project, not a linguistic one. Without a doubt, it was contemporaneous and interwoven with linguistic concerns, such as the vernacularization movement that advocated a rapprochement between spoken and written language, but the reduction of the number of strokes in a character did not have anything to do with speech *per se*. It was a mechanical problem of information acquisition — a skill necessary to learn how to read and write, how to become a knowledge worker. Qian Xuantong's powerful allusion to

[350] Yao-Chiang Chang (Yaoxiang Zhang), "Factor Affecting the Speed and Clearness of Reading Chinese" (MA Thesis, Columbia University, 1919), 1.

[351] ibid., 2.

neurasthenia that crowns this chapter as an epigraph characterized the informatic core of the problem. The amount of time and labor necessary to become literate in Chinese did not conform with the kinesis of modern information flow. The antiquated composition methods, old-fashioned thousand-character primers, and especially the characters themselves with their convoluted number of strokes resulted either in idiocy or neurasthenic collapse, at least according to Qian. Informatics needed adjustment for the sake of sanity.

Qian Xuantong was realistic about the social and intellectual environment in which he worked. As a dedicated alphabetizer, he despised characters, and believed that the only antidote that could cure the decaying informatic essence of Chinese was to get rid of the characters — "cure the essense (*zhiben* 治本)." He knew, however, that given the complex linguistic landscape of China as I have explained in the second chapter, the only manageable alternative was to "cure the signs (*zhibiao* 治標)," and leave the essence intact for a future battle. In 1922, along with his colleagues at the Preparatory Committee for the National Unification of Language, Li Jinxi, Lu Ji, and Yang Shuda, Qian famously declared that the course of action was going to be the reduction of the number of strokes in characters.[352] For the time being, increasing the velocity of cerebral input and manual output through simpler strokes was the main concern.

In contrast to Qian, for the majority of the people involved, simplification was the only way to save the Chinese characters from alphabetical invasion. China was not going to abandon its traditions, and give in to the tyranny of the alphabet. It was going to revolutionize itself from within, and articulate a native response to the global information age. The problem at hand was a techno-spatial one, one that mirrored factories and workers. Once reorganized, the printed page

[352] Xuantong Qian et al. "Jiansheng xianxing hanzi de bihua an," *Guoyu yuekan,* no.1 (1922), 160. Qian Xuantong's article was published earlier in 1920. See, Xuantong Qian, "jiansheng hanzi bihua de tiyi," *Xin qingnian,* vol. 7, no. 3 (1920).

could radically optimize cognitive labor. Chinese did not need an alphabet; it needed linguists, psychologists, educators, technicians, librarians, and scientists to manufacture Chinese 2.0. It needed cognitive architects to destroy and recreate the page.

I borrow from Schumpeter's terminology to suggest that the simplification project was an example of "creative destruction" in information technologies. Schumpeter described "creative destruction" as the process by which industrial capitalism "revolutionizes the economic structure *from within*, incessantly destroying the old one, incessantly creating a new one."[353] Creative destruction has become a buzzword especially in contemporary business circuits, for whom post-industrial society is its ultimate expression. The innovations in the Chinese writing system under a Republican knowledge economy, I would like to suggest, mirrored this process, as the creative destroyers sought revolution *from within*, creatively embodying the spirit of Chinese informationalism, while eternally suspending ultimate destruction.[354] Simplification was an attempt to destroy the old system of knowledge-production, which the reformers believed no longer satisfied the demands of the new economy; but in destroying the Chinese characters, they wanted to create an even stronger economy sustained through them. They saw no problem in maintaining—on the contrary, they embraced—the associations that the Chinese characters formed with history, literature, nation, economy, and race. Despite their radical stance, they were radical only within the bounds of the system, and never reached the radicalism of the

[353] Joseph Schumpeter, *Capitalism, Socialism and Democracy* (London: Routledge, 2003 [1944]), 83. Emphasis in the original.

[354] I am especially influenced by Alan Liu's remark that in postindustrial society (and academy), "creativity" takes place more than critical, antifoundationalist "destruction." Alan Liu, *Laws of Cool: Knowledge Work and the Culture of Information* (Chicago: University of Chicago Press, 2004), 322. On the "spirit of informationalism," see, Manuel Castells, *Information Age: Economy, Society, and Culture*, vol. 1 (Malden, Mass.: Blackwell, 1996-98), 199.

alphabetizers, especially the Latinists, for whom revolution came *from outside*—the subject of the seventh and eighth chapters.

This chapter investigates the creative and the destructive development of the simplification project, and its relationship with experimental sciences. "Curing the signs" was a bold assertion, but practically speaking, what was the prescription for this medical treatment? On what predetermined basis could strokes be taken out from or added to a certain character? Besides, were the number of strokes the decisive component in recognizing a character? Or were there other properties, such as the visual composition of characters, that mattered more?

The first section of this chapter briefly charts the early stages of the project, when Qian Xuantong, Li Jinxi, Hu Huaichen, Liu Fu, and other scholars pointed out the need to use *suzi* 俗字, characters that were already in circulation and were simplified by common people. The search for *suzi*, I suggest, was one of the first and biggest "text-mining" projects in China, for it required a long and meticulous ethnological and scholastic research project to locate and extract characters written with fewer strokes than was standard from a huge range of literary texts, including historical novels, plays, classics, dictionaries, letters, account books, medical prescriptions, hand-written notes, speeches, mimeographed publications, and so on. Text mining received an even greater impetus when Lin Yutang, one of the most influential liberal scholars of the period, publicly endorsed the simplification project in 1933, and called intellectuals from different professions to search for *suzi*. The end-result was complicated: as a variety of *suzi* was discovered, there was indeed an inflation of *suzi*. Which *suzi* were best fit for standardizing simplification?

The moment of doubt was the cradle of innovation. The absence of a well-defined trajectory in simplification allowed creative proposals to surface with different opinions about the paths of

optimization and efficiency. The second section examines two influential proposals for simplification that complemented the general text-mining project with an emphasis on the psychology of reading. How did one "read" characters? What were the limits of efficiency in reading? Xu Zemin and Du Dingyou's respective proposals were two of the most influential proposals, informed by different psychological experiments and theories, and they upheld different premises for what determined efficiency in simplification. Xu's statistics-based approach delivered a selection of *suzi* that was notably different from Du's, who relied on an idiosyncratic theory of the psycho-physiological habits of reading.

Text mining reached its telos in 1935, when the Preparatory Committee for the National Unification of Language, headed by Wu Zhihui, submitted a preliminary set of 324 simplified characters to the Ministry of Education. In August, 1935, the ministry approved the project, and simplified characters finally entered circulation after more than a decade of research. It was a big win for all who took part in the project. But, suddenly in January, 1936, the Central Executive Committee of the KMT decided to postpone the project indefinitely. Why did the party, after having approved the project, change its policy? What was the problem with simplified characters? The last section looks for an answer in the polarized politics of the 1930s, when the New Life Movement's emphasis on "nativity" together with the KMT's anti-communist stance sealed the fate of the simplified characters, at least until the 1950s.

I. Text Mining in Republican China

Before Qian Xuantong et alia famously pronounced it as the antidote to neurasthenia in 1922, simplification of characters was already a widely circulating idea. Lufei Kui, the later owner of Zhonghua Press, was one of the first proponents of simplification, who voiced his desire to

simplify characters in 1909, amid the late-Qing debates about script reforms, in the inaugural issue of *Journal of Education* (*jiaoyu zazhi*). Writing characters with fewer strokes, he argued, would increase the number of literate people and "save the student's mental labor (*sheng xuezhe zhi naoli*)."[355] Lufei's demand was part of a definitive educational reform that aimed at reducing the amount of time to produce literate minds. It was seen as the primary means to manufacture students in bigger bundles, the medium to cognitively manage the population. He defended the use of common characters, *suzi* 俗字, that were already in circulation among the populace, for they would both be easily embraced by the people, and help save strokes. *Deng* 燈, for instance, was commonly written as *deng* 灯, and it saved ten strokes. Writing *yu* 与 instead of *yu* 與 could also save ten strokes; *ti* 体 instead of *ti* 體 saved sixteen; *dian* 点 instead of *dian* 點 saved eight; *dui* 对 instead of *dui* 對 saved nine, and so on. Even his own name, Lufei argued, consumed too much energy, and he wanted to write it with half the number of strokes, although he never put this reform into place.[356]

When Qian Xuantong published his milestone article in 1922 on the simplification of characters, he further introduced another possible trajectory. Apart from using the simplified characters that were already in use, he noted that there were hundreds of examples of simplified characters in historical novels, account books, medical prescriptions, songbooks and other miscellaneous materials dating from as far back as the Song and Yuan dynasties. Cursive style (*caoshu*) and old works (*gushu*) were valuable databases to mine simplified characters, models for the project at hand. Under the light of the past, Qian suggested that simplification had

[355] Kui Lufei, "Putong jiaoyu dang caiyong sutizi," *Jiaoyu zazhi*, vol. 1, no. 1 (1909), 1.

[356] Kui Lufei, "Zhengli hanzi de yijian," *Guoyu yuekan*, vol. 1, no. 1 (1922), 7.

followed a few basic steps. If the character was too complicated, then the number of strokes were reduced while keeping a similar "form" (*xing*), such as in *shou* 壽 (long life), which was *shou* 寿 when simplified. In other cases, a certain component of a character served as a simplified synecdoche, as in *sheng* 聲 (sound) which was *sheng* 声 in simplified form. In certain characters, only one part of the character caused complication, such as in *bian* 邊 (side), in which case only that part was simplified, as in *bian* 边. Other characters allowed a replacement of their phonetic component, as in *yuan* 遠 (far), in which the phonetic component "*yuan* 袁" was replaced with the homophonic "*yuan* 元" to become *yuan* 远. Some of the characters, Qian believed, could directly be taken from old works, such as *li* 禮 (simplified: 礼). Some could use phonetic loans (*jiajiezi*), such as replacing *gan* 乾 with *gan* 干. And lastly, some could be replaced with alternative characters, such as using the simple character *xiang* 响 (sound) instead of *xiang* 響.[357] In short, choosing all the simplified characters from already extant databases, Qian called for a historically-informed *suzi*, a search for the historical precedents to simplification. He wanted to dig the multiple pasts of Chinese as a way to illuminate the future.

Simplification was the first and the biggest text-mining project in modern China. In 1928, a scholar of Chinese classics, Hu Huaichen 胡懷琛 (1886-1938), published one of the first methodological works to simplify characters, and suggested that simplified characters found in older works, such as in *Shuowen jiezi*, and invention of new characters, such as those found in vernacular works and in Japanese, could supplement the *suzi.*[358] *Shuowen jiezi* was a dictionary

[357] Xuantong Qian et al. "Guoyu tongyi choubei hui di si ci da hui, liang ge zhongyao de yi'an," 162.

[358] Huaichen Hu, *Jianyizi shuo* (Shanghai: Commercial Press, 1928), 8.

compiled by Xu Shen in the second century, during the Han dynasty. For Hu, it offered a native database for the simplification project, for one could see many of the characters in their simplified forms. *Qi* 氣, for instance, was written simply as *qi* 气; *yun* 雲 (cloud) had eight strokes less when written as *yun* 云; 冫 could be enough for *bing* 冰 (ice); 又 for *you* 右 (right)… Apart from classical examples, Hu also advocated the use of "new characters" (*xinzi*) used in vernacular literature. Novels written in Suzhou vernacular, for instance, made use of characters such as 勥 (a combination for *wuyao* 勿要 [unnecessary]). In writing new characters, Japanese was also an inspiration for Hu. Japanese shrank steamboat (*qichuan* 氣船) to one character combined of *zhou* 舟 (boat) and *qi* 气 (steam), and "electric wire" (*dianxian* 電線) to one composed of *mi* 糸 and *dian* 電 (electricity).[359] Why wouldn't Chinese follow the same route?

It was a similar desire that motivated Liu Fu 劉復 and Li Jiarui 李家瑞 to mine *suzi* from Song, Yuan, Ming, and Qing-dynasty texts, but their study was not didactic like Hu's. They rather aimed to show the complexity involved in the simplification project, and built the biggest database for *suzi* hitherto published. Their widely acclaimed work, *A Genealogy of Common Characters Since the Song and Yuan Dynasties* 宋元以來俗字譜, published in 1930, was geared towards finding the historical precedents to the simplification project, and it was much more ambitious than Hu's.[360] Liu and Li made use of twelve works in total, composed of a mix of classics, novellas, popular history books, poems, and plays, all of which had been widely circulating among the populace since the Song dynasty. *Biographies of Exemplary Women* (*gu lienu zhuan)*, for instance, contained 349 *suzi*; *Thirty Zaju Plays from Yuan Editions (gujin zaju*

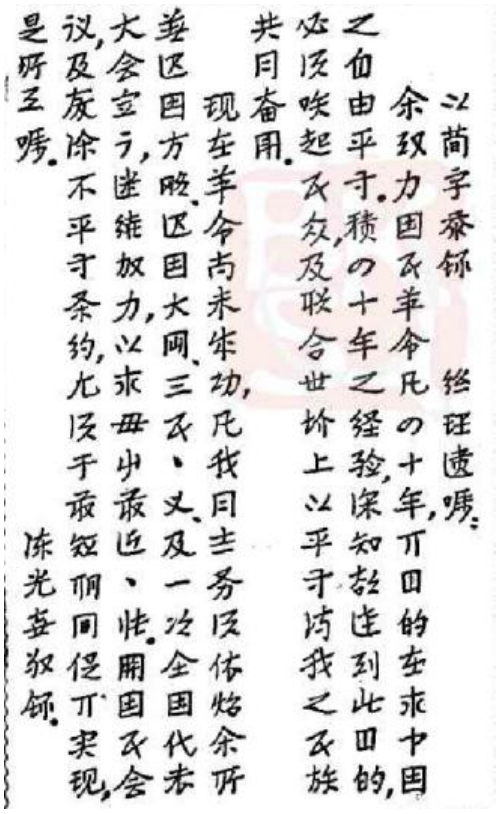
[359] ibid., 34.

[360] Fu Liu and Jiarui Li, *Song yuan yi lai suzi pu* (Guoli zhongyang yanjiuyuan lishi yuyan yanjiusuo, 1930).

sanshi zhong) had 963; the popular play on the Tang General Xue Rengui's conquest of the East (*Xue Rengui kuahai zhengdong baipao ji*) offered 304; the heroism of the Song General Yue Fei (*Yue Fei polu dongchuang ji*) a further 374, and so on. Liu Fu and Li Jiarui listed 1604 characters with 6240 *suzi* variants, which showed that there were roughly an average of four *suzi* for each character. What set this study apart from other projects was that Liu Fu and Li Jiarui did not try to devise a proposal to standardize *suzi*. Theirs was merely a compilation, an arduous database-building, which showed the variations in *suzi* throughout the centuries. In doing so, they pointed to but avoided the hardest problem: given the variety, how could *suzi* be standardized?

There were more radical proposals. Chen Guangyao's (1906-1972) response, for instance, was enticing, distinctive, and bizarre, when compared to the examples above. One of the pioneers of the movement who advocated simplification throughout his life, Chen combined all the tools at his disposal to invent new simplified characters, rather than selecting them from earlier works. He boldly rewrote "Presiden Sun Yat-sen's Will" (*zongli yizhu*) in his own simplified script, utilizing a mix of methods. In simplifying *guo* 國 (country), for instance, he followed one of the principles of *liushu* (known as *huiyi*, associative compounds), and combined two characters that had two different meanings. In this case *wei* 口 (enclosure) and *tu* 土 (soil) were combined to create *guo* "country." In other cases, he combined reduction of strokes with cursive calligraphy, or changed cursive calligraphy itself.[361] (Fig. 5.1) It is not clear, however, how legible the new script would be, even to the literate eye.

[361] The explanation of each character can be found in Guangyao Chen, "Jianxie zongli yizhu jie," *Lun yu*, no. 29 (Nov., 1933), 218. Chen Guangyao had been working on simplification since the late 1920s. See, Guangyao Chen, *Jianzi lunji* (Shanghai: Commercial Press, 1931).



以简字录钞
丝旺遗嘱：
余致力国民革命凡十年，
之自由平寺。积十年之经验，深知欲达到此目的，
必须唤起民众，及联合世协上以平寺待我之民族
共同奋用。
现在革命尚未牢功，凡我同志务须依始余所
主区国方略，巩固大网，三民、义及一次全国代表
大会宣言，继续加力，以求毋少最近、恢用国民会
议，及废除不平寺条约，尤须于最短期间促其实现，
是所至嘱。
陈光垚敬钞。

Fig. 5.1 — *The President's Will* by Cheng Guangyao

Lin Yutang was ambiguously attracted to Chen Guangyao's proposal. Lin Yutang (1895-1976) was one of the leading liberal intellectuals of early twentieth-century China, who prolifically published in English as well as Chinese. A translator of Chinese classics into English, Lin was also an inventor, whose "Chinese Typewriter" has recently been celebrated in historical studies.[362] In 1933, after Chen Guangyao's simplified characters were gaining some popularity, Lin initiated a movement for simplification in his popular biweekly journal, *Analects (Lun yu)*. While paying homage to Chen's endeavor, Lin wondered whether such a fundamental reform was the desired path. Instead of supporting Chen's mission, he publicly endorsed *suzi*, which was

[362] Jing Tsu, "Chinese Scripts, Codes, and Typewriting Machines," in *Science and Technology in Modern China,* ed. Jing Tsu and Benjamin Elman (Leiden: Brill, 2014), 135-137. For a monograph on Lin Yutang, see, Suoqiao Qian, *Liberal Cosmopolitan: Middling Chinese Modernity* (Leiden: Brill, 2011).

the only reasonable option according to Lin.[363] A firm believer in the simplification project, Lin saw it as the product of a natural process of evolution that had been at work since ancient times. Wasn't Li Si's "seal script" (*xiaozhuan* 小篆) in the Qin dynasty one step above the earlier *zhouwen* 籀文? And didn't Cheng Miao take a great leap forward in inventing the "official script" (*lishu* 隸書), which was a simplified form of the seal script? Why would anyone be opposed to the use of *suzi* that were already in common circulation and saved strokes in writing, such as *qie* 窃 instead of *qie* 竊, *ling* 灵 instead of *ling* 靈, *hao* 号 instead of *hao* 號, *wan* 万 instead of *wan* 萬? Defending the use of ancient characters was simply counter-evolutionary, according to Lin. "[To those who defend the preservation of ancient characters]," he noted sarcastically, "it is best to ask: Why don't you use tadpole characters (*kedou* 蝌蚪)?'"[364]

With Lin's support, *suzi* reached the height of its popularity, surpassing Chen Guangyao's invention.[365] It saved strokes, facilitated the recognition and reproduction of a character, eliminated the need to invent characters, and most importantly, it was a bottom-up project, for *suzi* characters were already in use by the common people. What remained to be done was the ethnological research of hunting down *suzi*, and the follow-up work of standardizing and popularizing them. As for the characters that did not have a *suzi* equivalent, Lin agreed with Qian Xuantong and others in that examples from old works and different kinds of Chinese calligraphy could provide a solution.[366]

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[363] Yutang Lin, "Wo de hua — tichang suzi," *Lun yu*, no. 29 (Nov., 1933), 216.

[364] ibid. Tadpole script was an ancient form of the seal script.

[365] Chen Guangyao, after realizing the support behind *suzi*, also a proposal for 900 simplified characters in *Lun yu.* See, Guangyao Chen, "Jianzi jiubai ge," *Lun yu*, no. 34 (1934), 512-515.

[366] Lin, ibid., 217.

Lin's journal served as a platform to allow the works of others to contribute to the project, and reach the wider public. Immediately after Lin called for the use of *suzi*, he started receiving dozens of proposals for simplified characters, several of which he published in his journal.[367] The ethnological search for *suzi* in daily life encouraged reformers to leaf through mimeographed publications, letters, account books, and all sorts of written materials they could find on the streets and in libraries. As was the case with Liu Fu and Li Jiarui's *suzi* from historical texts, however, there were many *suzi* equivalents of Chinese characters. If there were six different *suzi* for one character, who had the authority to decide on one? On what basis could *suzi* be selected for standard use?

Lin Yutang's call for *suzi* proposals opened a new avenue in the simplification of characters, since people from different occupational backgrounds with different ideas about the trajectory of simplification could voice their concerns and submit their original proposals. Two of the most famous proposals that Lin deemed worthy of analysis were by Xu Zemin and Du Dingyou, who advocated two different approaches to simplification, and were both informed by different psychological debates circulating in China and the US on reforming the Chinese writing system. These two proposals were not only influential within the movement at large, but they also represented different methods of "seeing" Chinese characters, and different opinions about the paths of efficiency.

[367] Lin did not publish all that he received, for most of the proposals overlapped in many ways. See, Lin Yutang, "wo de hua: suzi taolun tiyao," *Lun yu*, no. 41 (May, 1934), 792. The proposals that Lin published were as follows: Quyuan (Hu) (胡)曲元，"Suzi fang'an," *Lun yu*, no. 31 (Dec., 1933), 306-7; Ge Hai 海戈, "Lun suzi (shang)," *Lun yu*, no. 36 (March, 1934), 610-612; Ge Hai, "Lun suzi (xia)," *Lun yu*, no. 37 (March, 1934), 652-656.

II. Psychology in Simplification

Text-mining was complemented in unexpected ways by a number of intellectuals from different backgrounds and occupations, who contributed in various, sometimes conflicting, ways to the simplification project. Psychologists, too, contributed their share to the movement with their experimental methods, although their findings did not always justify the movement. In fact, some of their experimental research ran counter to the common assumptions about reform in writing. They all unanimously claimed, for instance, that in terms of learning, the number of strokes was secondary to the "form" of a character (*zixing*). This led some of the psychologists to conclude that simplification was neither necessary nor useful, while others still argued that the number of strokes should be reduced while keeping the form of characters intact.

Just as opinions varied within the scientific community, reformers' use of experimental results was also selective, which indicated the ambiguous relationship they had with experimental data. In theory, Mr. Science, as Hu Shi famously put it, was going to lead the way to a better China; but in practice, when Mr. Science did not directly legitimize the radical demands of the reformers, the findings were either selectively employed or completely ignored, for the political momentum of reform was bigger than what the findings of a handful of scientists suggested.

Two examples of the relationship between reformers and the scientific community may be seen in Xu Zemin and Du Dingyou's influential proposals. Xu relied on the experimental results of his teacher, Ai Wei, who published a statistical methodology based on psychological tests to simplify Chinese characters. But Ai Wei was neither the first nor the only psychologist to conduct similar tests, and his findings were in partial conflict with those of other psychologists. Nevertheless, they formed the psychological and statistical basis for Xu's choice of *suzi*. Du Dingyou, on the other hand, made use of the ambiguous term "habit" to argue for a psycho-

physiological process of reading in Chinese. In doing so, he used the works of a number of psychologists who themselves did not support the simplification movement, and put their findings regarding vision, especially those of Zhou Xiangeng, to the service of the simplification project. In contrast to Xu's statistics-oriented reading of Chinese characters, Du offered a *gestalt*-oriented vision. The road to efficiency, according to these two reformers, took very different routes.

A) Psychology of Learning Chinese: Liu Tingfang, Ai Wei, and Xu Zemin

Writing a character with fewer strokes certainly saved manual labor, but how important were strokes in learning a character? How did one learn a character? Was it the strokes that mattered, or were there other associational aids employed by learners? Psychologists were the first to put theory to the test. While some were busy counting characters, such as Chen Heqin, others experimented with them to understand the formation of mental bonds between the forms, sounds, and meanings of characters. It started with Liu Tingfang.

Liu Tingfang 劉廷芳 (Timothy Tingfang Lew) (1891-1961) was the first psychologist to conduct a psychological study of learning Chinese characters. A Protestant Christian born into a missionary family in Wenzhou, Zhejiang, Liu attended St. John's College in Shanghai, before moving to the United States in 1910. After a brief stint in Tennessee and Georgia, he completed his undergraduate studies at Columbia, studied theology at UTS for two years, and started his doctoral work in 1916 at Columbia Teachers College. He finished it quite hastily in 1920, when he returned to China take part in the May Fourth Movement. He originally planned his doctoral study in three parts: a study of the learning process, a photographic study of the eye-movements in reading Chinese, and a word-count of Chinese characters used in daily life. Although the task

of recording eye movements and word-counts were later undertaken by other psychologists, Liu was the first to write a psychological study of Chinese character-acquisition.

Liu was a strong supporter of the movement for vernacularization, led by Hu Shi and Qian Xuantong, and the Mass Education Movement led by James Yen, who authored the *Thousand Character Primers.*[368] He was among the intellectuals who wanted to articulate a *Chinese* response to the information age. Instead of phoneticizing Chinese, he believed that the Chinese writing system could be rationalized to conform with the demands of the knowledge economy. He was certain that the complete abandonment of Chinese characters was not the right path:

> …The prophetic voices among [scholars, scientists and educators] which first led the nation out of its slavish obedience to the ancient style into a wholesome appreciation of the practical conversational style of literary expression, are now solemnly calling it to go into a yet newer world in which the use of the old ideographs will be abandoned. This is, therefore, a time for people to 'stop, look and listen.'[369]

The abandonment of Chinese characters raised also a racial problem: "[Chinese language] is a veritable treasury of the great racial inheritances: literature, history, philosophy, traditions; everything worthy of being is embodied in it. Any tendency to give up the Chinese system of writing involves a sacrifice which no race can afford to make."[370]

Liu Tingfang was not alone in his reference to race. As I briefly explained in the last chapter, "race" was ubiquitous in all discussions of psychological phenomena; and especially in the arena of mental tests in the US, there was a deeply racist bias. Many Chinese and non-Chinese scientists were in fact trying to use intelligence tests as a counter-racist method to argue that all races were equal in cognitive capabilities. Pan Guangdan's, a famous Chinese psychologist of

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[368] see, ch. 2.

[369] Timothy Tingfang Lew, *The Psychology of Learning Chinese: A Preliminary Analysis By Means of Experimental Psychology of Some of the Factors Involved in the Process of Learning Chinese Characters* (Peking, 1924?), 3-4

[370] ibid. 9

sex, well-known inquiries into eugenics were also part of this racial discourse. Liu Tingfang's words on race, history, literature, philosophy, and traditions were a powerful example of the heavy associations that the Chinese characters evoked. The rationalization and amelioration of the Chinese writing system was almost a eugenic enterprise that could save the Chinese as a "race."[371]

The main problem, according to Liu, was to determine the "bonds" formed in the learning of Chinese characters. What was the mental process by which the form, sound, and meaning of a character bonded with one another? This was an innovative articulation of the problem. Han-dynasty scholar Xu Shen's *Shuowen Jiezi* was the first treatise to theorize Chinese grammatology according to the trilateral structure of form-sound-meaning. Every character, in other words, had a form (*xing*) that corresponded to a particular sound (*sheng*) and a particular meaning (*yi*). But in articulating the question in terms of mental "bonds," Liu was the first to *psychologize* Chinese grammatology.[372] (Fig. 5.2)

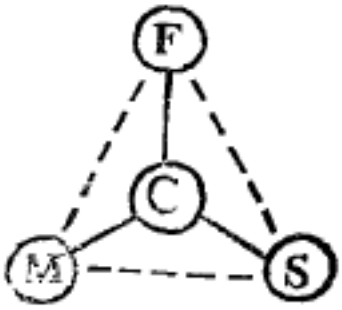

Fig. 5.2 — C: Character; F: Form; S: Sound, M: Meaning

[371] see ch. 2. Eugenics occupied an important place in Chinese intellectual debates during this period, and some of the famous psychologists were took part in them. See, Yuehtsen Juliette Chung, "Better Science and Better Race? Social Darwinism and Chinese Eugenics," *Isis*, vol. 105, issue 4 (2014), 793-802.

[372] Timothy Ting-fang Lew, "The Psychology of Learning Chinese, Part IV: Interpretations and Conclusions," *Chinese Social and Political Science Review* (1924), 145.

Liu's study was not prescriptive. He wanted to understand, and hopefully provide a remedy for, the psychological complexity of interacting with language through Chinese characters. His test subjects came from different backgrounds, and their number and linguistic capacity varied according to the experiment. Chinese adults who were studying at Columbia, American students and psychologists from Columbia, and Chinese children from New York's Chinatown who were familiar with Chinese language to varying degrees served as Liu's subjects. The purpose was to determine the characters that were easy to learn, the causes that effected the facility of learning, the differences in learning the sounds and meanings of characters, and the methods that subjects used as memory aids.

The database for his experimental study came from the Commercial Press' *New Dictionary* (1912), a landmark publication that represented the linguistic sovereignty of Republican China. *New Dictionary* contained around 30,000 characters, 9,586 of which were designated as commonly-used characters, and the rest as obsolete or very rarely seen. Liu first made an analysis of the 9,586 characters, and charted a graph that showed the distribution of characters according to the number of strokes.[373] (Fig. 5.3) The analysis showed that nearly eighty percent of all characters fell between those composed of seven to eighteen strokes, with the record belonging to 12-stroke characters, which amounted to 829 in total.[374]

[373] T. T. Lew, *The Psychology of Learning Chinese,* 23.

[374] Timoth Tingfang Lew, ibid., 23.

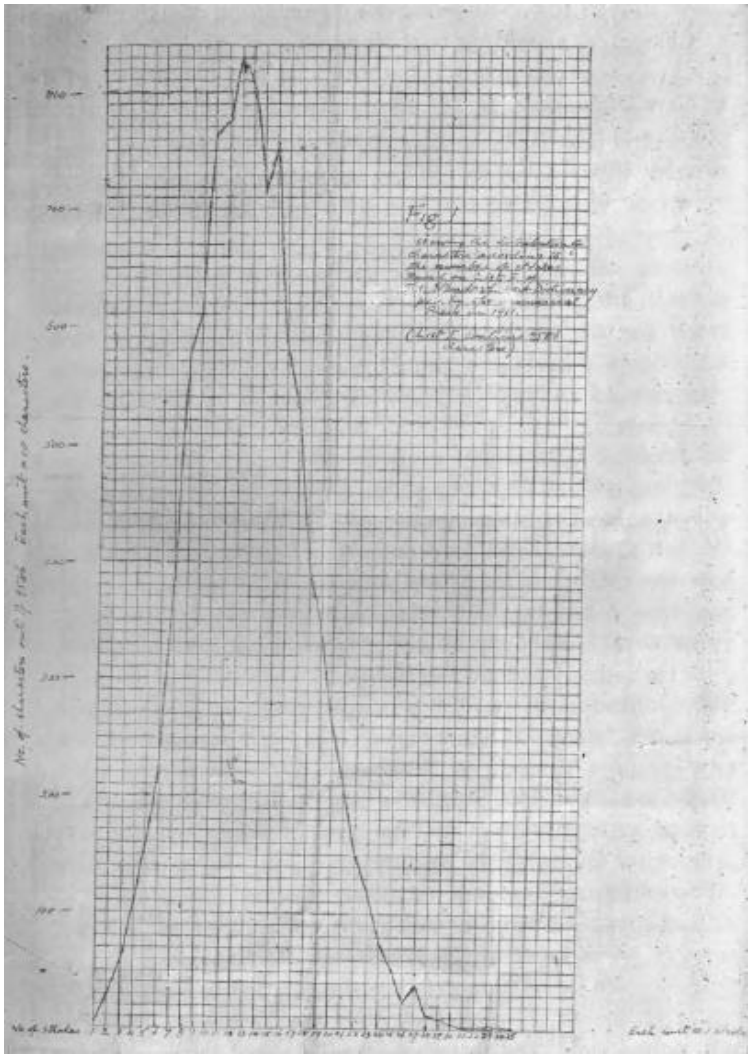

Fig. 5.3 — The distribution of characters according to the number of strokes. Each vertical unit corresponds to 10 characters, and each horizontal unit corresponds to 1 stroke. The graph reaches its apex in 12-strokes, hitting a record of 829 characters.

In order to identify the main factors that played into learning characters, Liu chose 26 out of more than 20,000 rare characters. These 26 characters varied in their complexity from one stroke to forty-seven strokes, roughly representing the variety of stroke numbers in commonly used characters.[375] (Fig. 5.4)

[375] ibid., 17-20.

Fig. 5.4 — 26 characters chosen by Liu Tingfang

The Chinese subjects were shown twenty-six cards, each with one of these twenty-six characters. If the subject informed the experimenter that he/she had seen the character before, that character was put aside, thereby assuring that the test was undertaken with characters that were seen for the first time by the subjects. The subjects were then taught the sound and meaning of the character, and after six months, they were tested again to determine how well they remembered the characters. The number of recitations and time it took the subject to remember the sound and the meaning of a character, and to reproduce a character in written form were recorded to see how the differences in remembering the sound, meaning, and form of the character played out according to the number of strokes.

The results from Chinese university students, Chinese children, and American students who were tested showed a great diversity in the nature of associative aids subjects used in learning Chinese characters. There were thirty-nine ways for the formation of the form-sound, and forty-two ways for the form-meaning bond. In forming the bonds in question, some used the meaning,

some the sound, some a synonym, some the root-radical, and some an "unexplainable" part of the character.[376] Given this variety, how could the characters be simplified?

Liu decided to tackle the problem at its core. Did the number of strokes have any effect on the process of learning, or not? He thus correlated the number of strokes with the rate of acquisition of sound, meaning, and form of a character, and tested it with all the different subjects. He was meticulous in representing his findings in minute detail, and the findings were again, unexpected.[377] An increase in the number of strokes did not result in a correlated difficulty of learning either the sound or the meaning of a character. But, if only meaning was taught to a beginner, then characters with more than ten strokes were more difficult to learn that those with ten strokes or less. In learning the form of a character, it was usually the case that the ones with a medium number of strokes were easier than the extremes, and the ones with the highest number of strokes were more difficult than those with fewer strokes, but those with very few strokes were not necessarily easier than the rest. Furthermore, the characters with a higher number of strokes were harder to learn but easier to recognize than those with fewer strokes. The reason for this unpredicted outcome, wrote Liu, was that the number of strokes was not the only nor the major element in learning a character. Dozens of associations made between the form, sound, and meaning of a character played a big role in the acquisition of characters.[378]

In the following years, other psychologists' findings followed Liu's. In 1928, Cai Lesheng 蔡樂生(Loh Seng Tsai) and Ethel Abernethy, two psychologists at University of Chicago, also

[376] Timothy Ting-fang Lew, "The Psychology of Learning Chinese, Part IV: Interpretations and Conclusions," *Chinese Social and Political Science Review* (1924), 144-189.

[377] For a very detailed analysis of his test results, see, Timothy Ting-fang Lew, "The Psychology of Learning Chinese, Part IV: Interpretations and Conclusions," *Chinese Social and Political Science Review* (1924), 34-105.

[378] ibid., 105.

experimented with the number of strokes to determine whether the level of difficulty in learning characters decreased with the reduction of strokes. The experiment consisted of thirty Chinese characters paired with random English words. Three series, comprised of ten characters each, were used. In the first series, there were three strokes to a character; in the second, there were six strokes; and in the third, twelve strokes. Twenty-one American graduate students, who had no experience with Chinese characters, served as research subjects. Each pair was shown for three seconds, and immediately after showing each character in each series, a test of recognition was made. Twenty-four hours later, a test of retention followed. And finally, a test of reproduction. Cai and Abernethy claimed that the difficulty of retaining and reproducing a character did increase with the number of strokes; but, in only recognizing a character, the difficulty was in fact independent of the complexity of characters, for characters with equal number of strokes showed great differences in the time required to learn them. They thus concluded that in recognizing a character, the "patterns of characters," i.e., character-forms, were more important than stroke-counts.[379]

Neither Liu's nor Cai and Abernethy's research directly justified the reformers' claim that simplification facilitated learning. The composition of a given character had intrinsic visual qualities that was indispensable in recognizing it. But given that retaining and reproducing a character was also part of the labor involved in learning, wasn't it still necessary to reduce the number of strokes? If so, what would be the methodology of reduction? Ai Wei formulated the most cogent answer.

Ai Wei, a psychologist who taught Chinese at the School of Foreign Service, Georgetown University, was also concerned about the future of Chinese characters, which were the "social

[379] Loh Seng Tsai (Cai Lesheng) and Ethel Abernethy, "The Psychology of Chinese Characters," *Journal of Experimental Psychology*, vol. 11(6) (Dec., 1928), 430-442.

inheritance," he claimed, accumulated through thousands of years.[380] In 1928, following the American psychologists and Liu Tingfang's pioneering works, he studied the psychology of learning characters, using James Yen's *Thousand Character Primer* as his data-set. 87% of its 1232 characters, he first determined, was composed of characters with between five to seventeen strokes.[381] (Fig. 5.5)

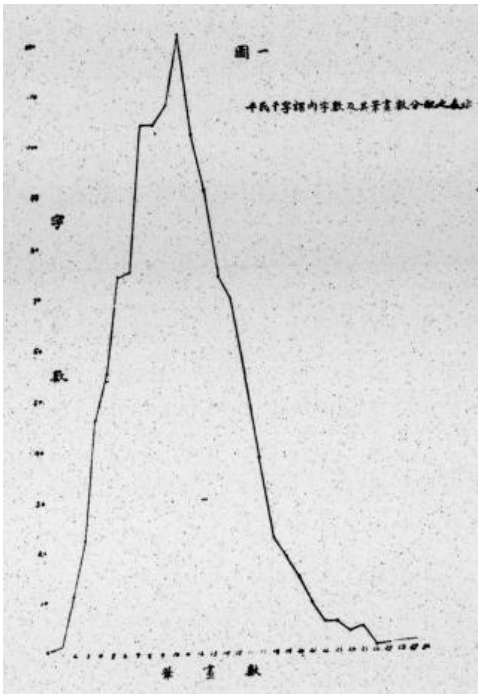

Fig. 5.5 — The distribution of stroke-numbers according to the number of characters

Ai Wei's test subjects were one hundred and forty-eight American students from Washington University and Georgetown, who had no knowledge of Chinese characters, and his main goal was to measure the time needed to reproduce the characters correctly, depending on the number of strokes. He prepared cards with different characters, and showed the cards to subjects eight

[380] Wei Ai, "Hanzi zhi xinli yanjiu," *Jiaoyu zazhi*, vol. 20, no. 4 (1928), 1. Ai was at Georgetown from 1922 to 1924.

[381] ibid., 13.

times, each time for eight seconds, and after each display, he asked them to reproduce what they saw.[382] (Fig. 5.6)

Fig. 5.6 — Reproduction of characters with different stroke numbers

His results showed that characters with equal to or less than ten strokes were much easier to learn than characters above ten strokes; yet, the rise in the number of strokes did not necessarily correlate with the difficulty to read. On average, the characters with thirteen strokes were harder to memorize than seventeen strokes, which led Ai to conclude that the arrangement of strokes, i.e., the "form" of the character (*xing*) was a significant component in assessing the difficulty of learning.[383] He proposed a practical solution to the problem at hand: Eleven to fifteen strokes could form easy as well as hard characters depending on the character-form. The hardest characters to learn were those composed of equal to or more than thirteen strokes, those with more than ten strokes on either side (such as in *liu* 劉 or *luan* 亂), and those that had three or four

[382] ibid., 15.

[383] Wei Ai, "Hanzi zhi xinli yanjiu (xu)," *Jiaoyu zazhi*, vol. 20, no. 5 (1928), 1.

parts to them (*yi* 疑 or *sha* 殺).[384] Simplification was a meaningful psychological enterprise as long as the "forms" of characters were maintained while their complicated components simplified.

Xu Zemin 徐則敏 was a student of Ai Wei, and a close follower of his studies. Except for his identity as an educator from Zhejiang province, and as an author of articles and books about Chinese education, very little is known about Xu, but his statistically- and psychologically-informed proposal for simplifying Chinese characters was among the most influential and deserve particular attention. In 1930, before he made it into Lin Yutang's *Analects*, Xu carried out a statistical study of stroke-counts based on Chen Heqin, Ao Hongde, and Wang Wenxin's word-counts, and used Ai's study to argue for a psychologically convenient reduction of strokes.[385] Xu chose 800 out of the frequently-used 2400 characters, and compared them with all the characters and their stroke-counts in the *Great Zhonghua Dictionary,* which had 42,239 characters in total.[386] (Fig. 5.7) His analysis was even more ambitious than Liu Tingfang's, who had merely used 9,586 characters.

[384] ibid., 7.

[385] For more on Chen Heqin, Ao Hongde, and Wang Wenxin, see ch. 2.

[386] Zemin Xu, "Hanzi bihua tongji baogao," *Zhonghua jiaoyujie*, vol. 18, no. 12 (1930), 44.

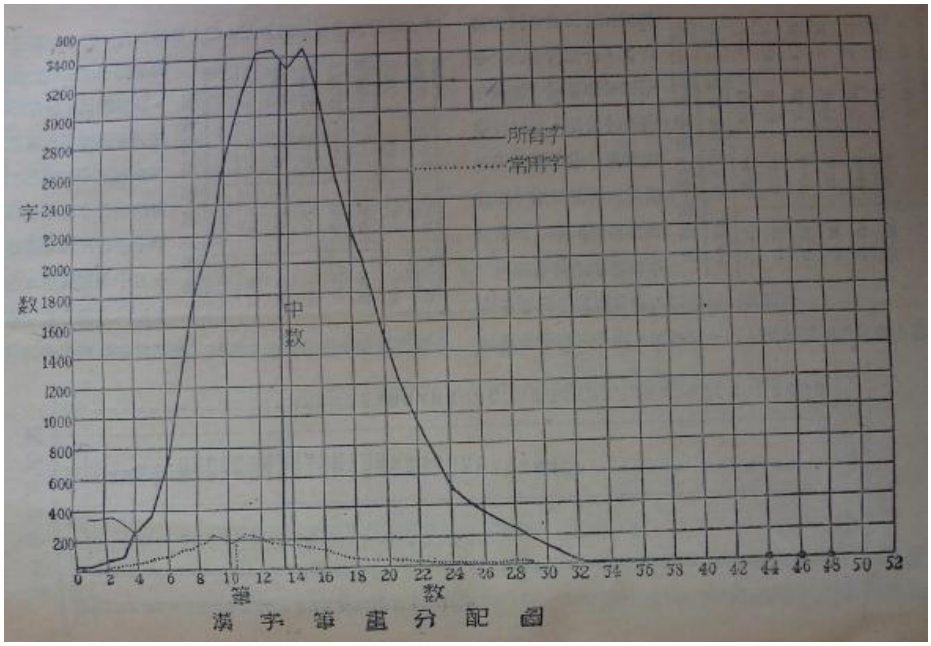

Fig. 5.7 — Dotted line shows the character/stroke ratio in 800 most frequently-used characters; straight line shows the same ratio in 42,239 characters.

Xu's purpose was to decrease the number of strokes in the most frequently-used characters, so that learning characters could conform with student psychology. [387] Xu repeated Ai Wei's findings that characters with strokes less than or equal to ten were easy to learn. Among the characters with ten to fifteen strokes, the level of difficulty depended on other factors. Those that had more than fifteen strokes were simply too difficult. According to Ai's findings, Xu calculated that among all 40,000 plus characters, 23.46% of all characters were easy to learn, 37.83% were difficult, and 39.71% depended on other factors. Among the frequently-used characters, the results were not that favorable either. Difficult characters still occupied 18.34%, and the ones whose difficulty depended on other factors amounted to 39.16%. In other words, even the frequently-used characters were not that easy to learn. Simplification of characters was necessary, especially of the 18.34%. Characters with more than eleven strokes, he wrote, must be decreased to less than eleven, and those with less than eleven should further be simplified. If the

[387] ibid., 46.

average stroke-number of the most frequently-used one thousand characters could be taken down to around six, it would economize the speed of learning by reducing the required time to a half.[388]

To devise a proposal for simplified characters, Xu combined Ai Wei's psychology with the *suzi* movement that had been steadily progressing, and collected a large amount of *suzi* examples from various sources. He asked university students to write the *suzi* variants for 2,400 frequently-used characters, and searched for *suzi* in hand-written notes, letters, account books, and mimeographed publications of public speeches as well as in dictionaries and cursive-style calligraphy. Older books from the Qing dynasty and Liu Fu and Li Jiarui's collection of *suzi* from Song onward also expanded the limits of Xu's *suzi* database. In 1931, he published a list of 2,500 simplified characters, and when Lin Yutang endorsed the project, he selected 550 examples from his list to serve as a model for simplification. In 1934, Lin published them in *Analects.*[389] Some, though certainly not all, of Xu's characters will look familiar to the contemporary readers of simplified Chinese, for the PRC followed up on this project in the 1950s. (Fig. 5.8)

[388] ibid.

[389] Zemin Xu, "550 suzi biao," *Lun yu*, no. 45 (1934), 40-42.

Fig. 5.8 — A Sample from Xu Zemin's 550 *suzi*

B) Psycho-physiological Habits of Reading: Du Dingyou and Zhou Xiangeng

Another, and perhaps more influential, proposal for character simplification came from the librarian Du Dingyou. A native of Guangdong province, Du Dingyou (1898-1967) received his degree in library sciences at the University of the Philippines, founded by the American colonial government. After his return to China in 1921, Du became a pioneer in Chinese library sciences, and was well-known for the novel methods he invented to simplify the indexing of Chinese

characters in the libraries. Du was also an early proponent of modern psychology, and even published a textbook on the subject in 1925, which made almost twenty editions in six years.[390]

Du's interest in library sciences coincided with the period of reform in Chinese characters, and he offered his due share to the simplification project. Before he came to terms with *suzi* in the 1930s, he was a believer in more avant-garde reform. In the 1920s, for instance, he suggested that Chinese characters provided a unique opportunity to *combine* multiple characters into one, and thereby reduce the number of strokes and increase the density of input. He took classical literary style as his model. In classical texts, certain characters were indeed the combination of two characters. For example, *gai* 盍 was a combination of *he* 何 and *bu* 不, meaning "why not?" Why not, Du thought, apply the same principle to modern characters? [391]

His favorite example, coming from his own occupational interest, was "library," which in modern Chinese was written in three characters, *tu-shu-guan* 圖書館, but he proposed to write it as one character "*tushuguan* 圖," a *shu* 書 (book) inside a *wei* 口 (enclosure). Du's contemporaries praised this effort to economize writing through combining and shrinking characters, and Du started proliferating the examples.[392] Perhaps inspired by vernacular literature like Hu Huaichen, he combined the two characters of *xiansheng* 先生 (mister) to make  ; he shrank *chiling* 敕令 (to command an order) down to  ; *zhiyao* 只要 (only, so long as) became .[393] He soon let loose of the reins, and started combining phrases and monetary values:

 都是命也 (It's all fate)

[390] Dingyou Du, *Xin shifan xinli* (Zhonghua Press, 1931 [1925]).
[391] Dingyou Du, "[tushuguan] xin zi zhi shangque (di san ci)," *Tushuguanxue jikan*, vol. 6, no. 2 (1932), 292-93.
[392] Dingyou Du, ""[tushuguan] xin zi zhi shangque (di er ci)," *Tushuguanxue jikan*, vol. 3, no. 4 (1929), 625-627.
[393] All the characters are copied from Du Dingyou, "[tushuguan] xin zi zhi shangque (di san ci)," 293-294.

 五元四角 (Five *yuan* and four *jiao*)

 七角半 (seven and a half *jiao*)[394]

Characters could be combined and invented *ad infinitum*, but Du Dingyou's economy of writing demanded an ardent process of relearning which was not economic at all. In the following years, he abandoned his avant-garde economy of signs, and started working on a more practical project that took him to the territories of *suzi* and "habits."

In the early years of the 1930s, Du was troubled by the problem of indexing Chinese characters in the libraries. Deeply annoyed by other popular indexing methods, Du sided with the psychologists who had long been addressing the issue of "form." As Liu Tingfang, Cai Lesheng, Abernethy, and Ai Wei had all pointed out, the problem of efficiency in reading—or in general, interacting with Chinese characters—could not be resolved merely through a calculation of strokes. "Character-forms" (*zixing*) were in many cases more important. Du concurred. Character-forms were significant, Du pointed out, because they conformed with the psycho-physiological "habits" of reading Chinese. Chinese readers had been interacting with Chinese characters for thousands of years, and accumulated a particularly Chinese habit of "seeing" the characters.

Du's formulation of the question in terms of "habit" echoed certain psychologists' work on the direction of reading Chinese. Since 1919, rotation of the direction of writing from vertical columns to horizontal lines was a fiercely debated subject. Many of the reformers, including psychologists and educators, believed that horizontal reading was intrinsically more efficient

[394] In writing numbers, he was using their abbreviated forms commonly used in accounting. I would like to thank Madeleine Zelin for pointing this out.

than vertical reading; but when put to test, every single result showed that vertical reading was in fact more efficient when reading Chinese! Psychologists such as Zhang Yaoxiang, Du Zuozhou, and Eugene Shen (Shen Youqian), who recorded physiological reaction times and eye-movements in their studies, all argued that this unexpected result simply reflected the old habits of reading, and that it could not be used as a decisive evidence to argue that reading vertically was objectively more efficient.[395]

Zhou Xiangeng 週先庚, or Siegen K. Chou (1903-1996), took it upon himself to resolve this conundrum of "habits." Zhou was a psychologist at Stanford from 1925 to 1930, and he later held several appointments in the psychology departments of Tsinghua, Beijing, and Southwestern University. During his brief stint at Stanford, he became highly skeptical of earlier research on the direction of reading, and added further dimensions to the study of efficiency. Instead of comparing sentences written in horizontal and vertical dimensions, he turned them upside down, wrote them from right to left, tilted them 90 degrees, and experimented with all possible directions a sentence could be arranged in, and with all positions a character could be written in. He further replicated his experiments with English words and sentences. In the end, he came up with a new conceptualization: *Gestalt* of reading Chinese characters.

Gestalt of reading Chinese was a derivative of word-*Gestalt* studies, according to which, the perception of a word written in English letters was not so much based on the individual letters,

[395] There were many experimental studies on the direction of reading Chinese. After observing that all experiments yielded similar results about the efficiency of vertical-reading, Eugene Shen concluded that "though habit is a necessary and may even be a sufficient explanation, it is certainly neither exclusive or exhaustive." See, Eugene Shen, "An Analysis of Eye Movements in Reading Chinese," *Journal of Experimental Psychology,* vol. 10, no. 2 (1927), 179. Other tests that engendered heated debates among the community of Chinese psychologists were: Yao-Chiang Chang, ibid.; Horace Tu, "The Effects of Different Arrangements of the Chinese Characters Upon Speed and Comprehension in Silent Reading," *Chinese Social and Political Science Review,* issue 2 (Apr., 1926), 278-301; Li Kiang Chen and H. A. Carr, "The ability of Chinese students to read in vertical and horizontal directions," *Experimental Psychology*, vol. 9 (1926), 110-117; W. R. Miles, Eugene Shen, "Photographic Recording of Eye Movements in the Reading of Chinese in Vertical and Horizontal Axes: Method and Preliminary Results," *Journal of Experimental Psychology* 10 (1925), 344-362. A Chinese translation of this study was published in *Xinli* in 1926.

but the *Gestalt* of the word, which was bigger than the sum of its parts. He took the example of a poem. (Fig. 5.9)

Being a brain is not to live in gladness
So long as conscious mammals rant and rave:
For thoughts askew provoke my cells to madness
And force me fast toward a luckless grave.

Fig. 5.9 — Zhou Xiangeng's example of an English poem

When the poem was turned outside down, the words did not look the same, although their similar structures were still vividly discernible.[396] (Fig. 5.10) Its mirror-image, similarly, required a different orientation for the reader, but since the sequence of individual letters were not altered, it did not make a big difference in the perception of the word-gestalt. (Fig. 5.11)

Being a brain is not to live in gladness
So long as conscious mammals rant and rave:
For thoughts askew provoke my cells to madness
And force me fast toward a luckless grave.

Fig. 5.10 — English poem turned upside-down

Being a brain is not to live in gladness
So long as conscious mammals rant and rave:
For thoughts askew provoke my cells to madness
And force me fast toward a luckless grave.

Fig. 5.11 — English poem's mirror-image

Yet, instead of turning each word upside down, if one turned the mirror-image of each individual letter upside-down, then the experience of reading was completely different. (Fig. 5.12) The word-Gestalt no longer had its original characteristics. If the order of the letters were changed even more radically, the word-Gestalt would lose almost all of its properties.

Being a brain is not to live in gladness
So long as conscious mammals rant and rave:
For thoughts askew provoke my cells to madness
And force me fast toward a luckless grave.

Fig. 5.12 — The mirror-image of each individual letter turned upside-down

[396] All images are taken from Siegen K. Chou (Zhou Xiangeng), "*Gestalt* in Reading Chinese Characters," Psychological Review, vol. 37(1) (Jan., 1930), 54-55.

Zhou followed the same order of distortions in his experiment of Chinese sentence-*Gestalt*. He changed the order and position of characters for his experiment. (Fig. 5.13)

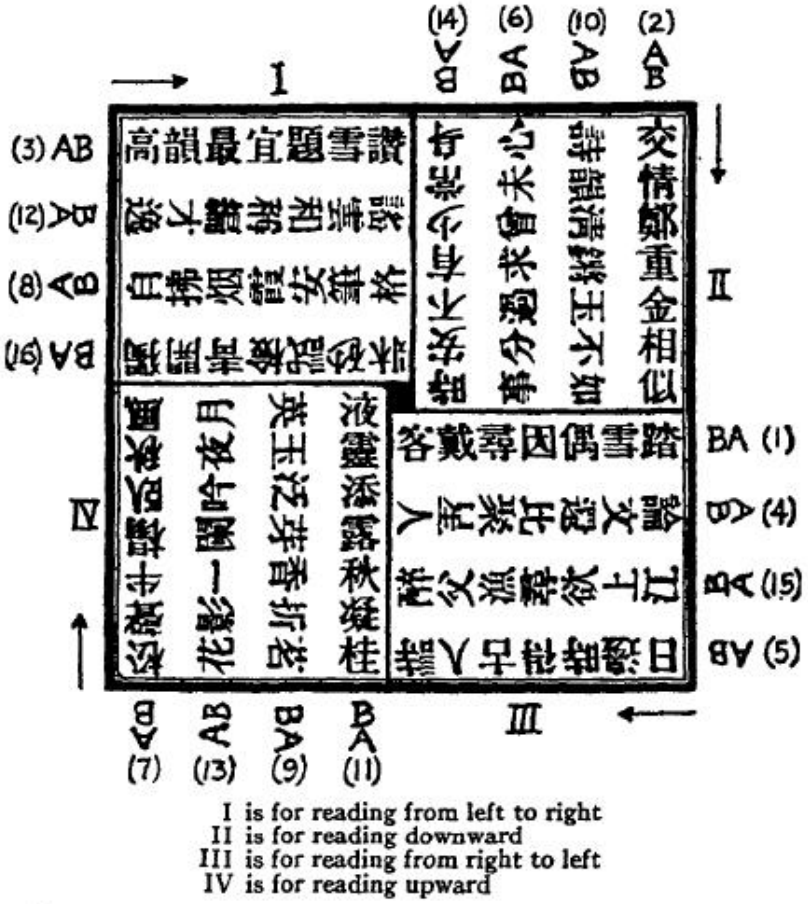

Fig. 5.13 – Chinese Sentence-*Gestalt*

His findings were unexpected. It turned out that leftward horizontal reading was indeed 5% faster than rightward reading. Moreover, leftward reading was also 4% faster than the traditional downward reading.[397] Leftward horizontal reading was the fastest! How to make sense out of this finding?

[397] ibid., 60.

Instead of taking this finding at face-value and arguing for the necessity to write horizontally in leftward direction, Zhou suggested that reading efficiency was not necessarily an outcome of line-arrangement. It had "something intrinsic in the sequential order of eye-movement pauses."[398] The eye-movement pauses in the linear width of each English word was different from the order of eye-movement pauses from top to bottom. "Words or letters follow one another," he wrote:

> The word "follows" implies a meaning that is both spatial and temporal. When two or more words or letters stand together on the page … they are only spatially following one another. But so long as they are intended to be read … they are not only spatially following one another but temporally as well.[399]

If an English word was written in the usual rightward direction, such as "AB," the perceptual process was "*first from* the right side of one word or letter *and then* to the left side of the next."[400] Similarly, in the Chinese downward reading, the perceptual process followed the reverse order: first came the bottom side of the first character and then the top side of the next. In other words, the temporal-spatial sequence of written letters/characters followed an intrinsic physiological order, and thus "the general preference in reading efficiency," wrote Zhou, "is not for a certain absolute reading-direction nor for a certain absolute character-position exclusively but rather for a certain relative temporal-spatial sequence resulting from the direction-position combination. It is this temporal-spatial sequence that constitutes the *Gestalt* of a line of Chinese characters."[401]

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[398] ibid., 63.

[399] ibid., 64.

[400] ibid. Emphasis in original.

[401] ibid., 65.

The physiological process of reading from top to bottom, argued Zhou like his colleagues, was a deep-rooted, habitual phenomenon: "Chinese adult readers find their reading efficiency preference most strikingly for the primary *Gestalt* of 'bottom-to-up' sequence irrespective of the reading direction, primary in the sense that it had been the only traditional sequence for centuries until about a decade ago."[402] Efficiency, in other words, could not be artificially fabricated. *Gestalt* of the spatio-temporally configurated reading units and "the phenomenal and reaction patterns and configurational dispositions and capacities *within the reader*" determined reading efficiency. Responding to earlier comments that "habit" cannot be the exclusive and exhaustive explanation, Zhou argued that "[habit] can be … *the* exclusive and exhaustive explanation in the sense that the age-long and life-long traditional practice in vertical downward reading of upright characters has entirely outdone, eclipsed, and obliterated the hypothetical influence of all other possible factors."[403]

Zhou's reconsideration of habit in terms of spatio-temporality of writing provided an alternative to a mere calculation of speed and observation of eye-movements. The physiology of the human subject, according to Zhou, was not enough to account for efficiency. It was the spatial configuration of the written word and the historically developed interaction between writing and the human subject that played a significant role in determining efficiency. Habits, in other words, were not obstacles, but necessary components of mental and literate life. They could not be changed according to a unilateral calculation of physiological reaction time.

Du Dingyou's own work on indexing Chinese characters wrestled with the issue of "character-forms" and "habits," and in many ways, it echoed Zhou's patterns of thought. "Habit," according

[402] ibid.

[403] ibid., 68.

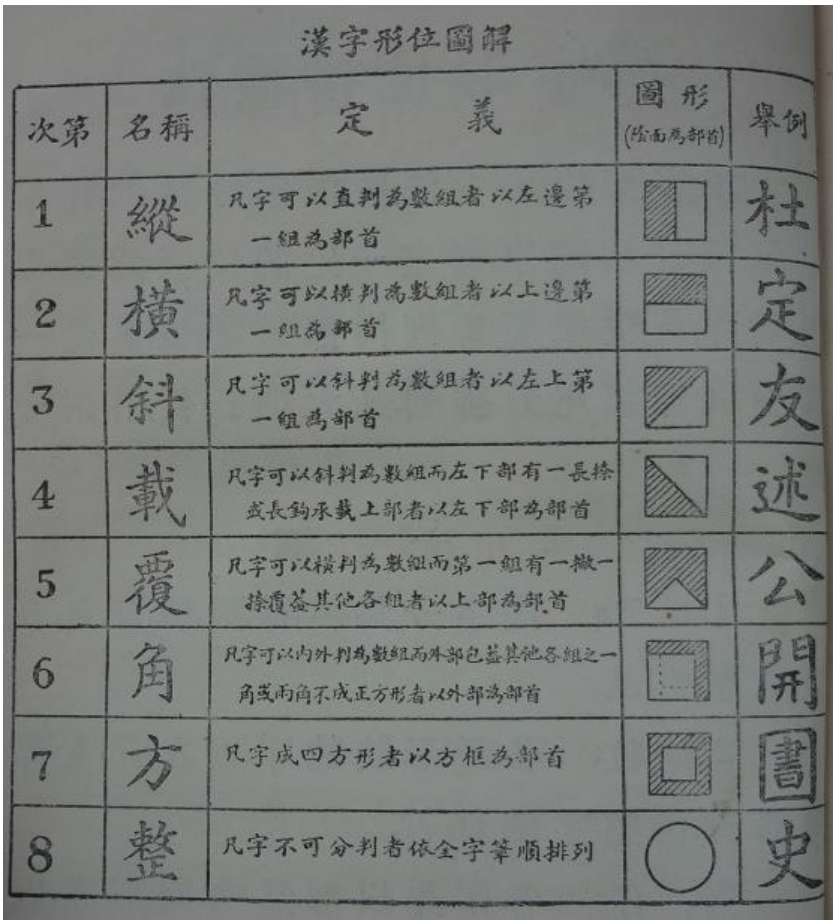
to Du, was a deeply ingrained psycho-physiological process, and it could not be changed with the wave of a hand. But in contrast to Zhou, who used habit as a proxy for sustaining the status quo, Du used it as a springboard to optimize reading in Chinese. Du was not an experimental psychologist like Zhou and others, but his amateur interest in incalculable habits gave rise to one of the most original pieces on the psychology of reading Chinese.

In his magnum opus, *Method for Arranging and Indexing Chinese Characters according to Forms*, Du devised eight forms of "seeing" a character, which corresponded to the Chinese people's "psychological and physiological habits" (*xinli he shengli shang de xiguan*) of reading.[404] According to Du, Chinese characters were foremost of all visual constructions. They were composed of root-radicals (*bushou*) and character-roots (*zigen*), and these two components were habitually indispensable in seeing and reading a character. The characters for his name, Du Dingyou 杜定友, for example, were vertically, horizontally, and diagonally written. (Fig. 5.14) A reader of Chinese visually perceived the vertically-written character *du* 杜 from left to right — in the habitual form of seeing, 土 (character-root), spatially and temporally, followed 木 (root-radical). If the character was horizontally-written, however, such as *ding* 定, then the Chinese viewer perceived it from top to bottom, i.e., 宀 (root-radical) came before (character-root). When diagonally-written, as in the case of *you* 友, left side preceded the right side. In writing his favorite character, library 圖, habits demanded that the eye read it rectangularly — first the enclosure 口 (root-radical), then the treasure inside, the book 書 (character-root).[405] The ways of seeing, much like the *Gestalt* of reading, coincided with the visual structure of the Chinese

[404] Dingyou Du, *Zhongguo jianzi wenti* (Unidentified publisher, 1931), 53.

[405] Dingyou Du, *Hanzi xingwei pai jian fa* (Shanghai: Zhonghua Press, 1932), 2.

characters, in which the root-radical occupied an equally important place as the character-root. Du's theory of seeing especially spoke against rival indexing schemes, but it was also conducive to his proposal for simplification.



漢字形位圖解

次第	名稱	定義	圖形 (繪面為部首)	舉例
1	縱	凡字可以直判為數組者以左邊第一組為部首		杜
2	橫	凡字可以橫判為數組者以上邊第一組為部首		定
3	斜	凡字可以斜判為數組者以左上第一組為部首		友
4	載	凡字可以斜判為數組而左下部有一長捺或長鈎承載上部者以左下部為部首		述
5	覆	凡字可以橫判為數組而第一組有一撇一捺覆蓋其他各組者以上部為部首		公
6	角	凡字可以內外判為數組而外部包盖其他各組之一角或兩角不成正方形者以外部為部首		開
7	方	凡字成四方形者以方框為部首		圖
8	整	凡字不可分判者依全字筆順排列		史

Fig. 5.14 — Psycho-physiological habits of reading Chinese

Two years after he published the eight forms of writing and seeing Chinese characters, Du published a list of 400 simplified characters. As long as the number of strokes could be reduced without harming neither the visual form of the character, nor the psycho-physiological habit of reading it, Du saw no problem with the project. He was especially in support of *suzi*, and was closely following the other proposals. Remaining true to his earlier indexing project and the

extant *suzi*, Du decreased the number of strokes in root-radicals and in character-roots in order to retain the forms mostly intact—except the popular *suzi* that completely replaced complicated forms to bring writing closer to speech, such as *zhi* 只 (only) instead of *zhi* 祇. (Fig. 5.15) His faithfulness to *suzi* further put his proposal at the forefront of the simplification project. Some of Du's characters will also be familiar to readers of Chinese, even more so than Xu's.[406]

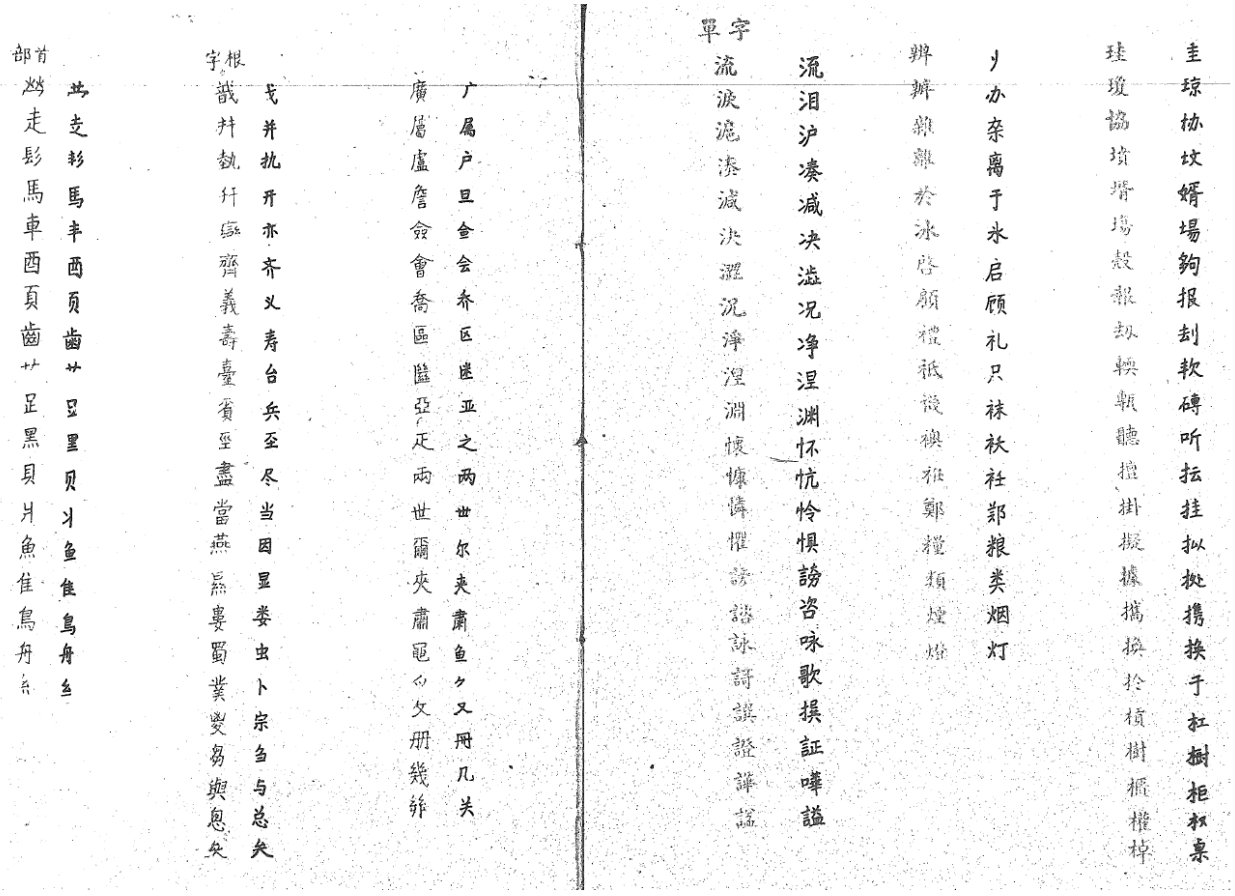


Fig. 5.15 — Du Dingyou's root-radicals, character-roots, and simplified characters

Du's proposal was the last among a list of influential schemes, including those of Hu Huaichen, Chen Guangyao, and Xu Zemin. In the following months, the movement grew in an

[406] Dingyou Du, *Tushuguan bian muyong jianzi biaozhun zibiao* (Shanghai: Zhongguo tushuguan fuwushe, 1934), 1.

unprecedented way. Wu Zhihui, Qian Xuantong, and others from the Preparatory Committee put all the proposals together, made a final decision on the first standardized set of 324 simplified characters, and submitted them to the Ministry of Education. After a careful investigation, the ministry approved the characters in August, 1935, and promulgated their use in schools. After more than a decade of meticulous research and debates, Chinese characters were officially simplified. It was an exciting moment for all concerned.

Then, all of a sudden, something happened. In January, 1936, only five months after the ministry's approval, the Central Executive Committee of the KMT decided to postpone the project indefinitely. Especially when the government had close ties with the Preparatory Committee, which fully supported the movement, why did the leaders of the party decide to go against the current? What was wrong with simplified characters?

III. Simplification as Apocalypse: "Native Characters" vs. "Handy Characters"

In January, 1934, almost a year and a half before the Ministry of Education promulgated 324 simplified characters, Qian Xuantong published an article, cryptically titled "A Proposal for Mining the Native and thus More Appropriate Simplified Characters (*soucai guyou er jiao shiyong de jiantizi an*)." *Suzi*, popular books since the Song dynasty, cursive scripts (*zhangcao* and *jincao*), running script (*xingshu*), *Shuowen jiezi,* and *biezi* from old stelae were the agreed-upon databases, wrote Qian, for mining simplified characters.[407] But mining characters had been taking place for almost a decade, why publish an article in 1934, and claim that this particular search for simplified characters was "native" and "thus, more appropriate"? What was at stake for Qian?

[407] Xuantong Qian, "Soucai guyou er jiao shiyong de jiantizi an," *Guoyu zhoukan* 23 (1934), 1.

The early 1930s saw the increasing influence of fascist ideology among the higher echelons of the KMT, with an emphasis on "native culture." The date of Qian's publication is striking: it was published only a month before Chiang Kai-shek initiated the New Life Movement. New Life Movement (NLM) was the KMT's counterrevolutionary project with fascist aspirations to Nazify the party under the image of a Chinese Führer, and discipline citizen behavior by intervening in daily life to build and mobilize a new nation.[408] NLM officially started in Nanchang, Jiangxi Province, on February 19, 1934, but the plan to emulate German and Italian fascism was already underway before that date.[409]

A crucial element in the Nazification of party politics was the reinvention of a traditional vocabulary and culture as the essence of the Chinese nation. The new public morality (*gongde*) consisted of a modern hygienic vocabulary on the one hand, focused orderliness and cleanliness, and a traditional conceptual vocabulary based in Confucian morality: propriety (*li*), righteousness (*yi*), integrity (*lian*), and sense of shame (*chi*). Modernity was equated with embracing native traditions, and reviving a "native morality" (*guyou daode*).[410] What Dai Li, the head of intelligence and Chiang Kai-shek's right arm, had written as the purpose of espionage was true for the New Life Movement at large: "to construct a psychology (*jianshe xinli*) through

[408] Scholarship on New Life Movement has gone through different stages in the last fifty years. While I agree with the more recent studies that define the movement as a part of modern state-formation, I disagree with arguments that posit state-formation before the anti-communist — in the words of Arif Dirlik, "counterrevolutionary" — aspirations of the movement. I suggest that New Life Movement was a part of modern party-state formation. The works that have influenced me in this regard are: Arif Dirlik, "The Ideological Foundations of the New Life Movement: A Study in Counterrevolution," *The Journal of Asian Studies*, vol. 34, no. 4 (Aug., 1975), 945-980; Frederick Wakeman, "A Revisionist View of the Nanjing Decade: Confucian Fascism," *The China Quarterly* 150 (1997), 395-432; Robert Culp, "Rethinking Governmentality: Training, Cultivation, and Cultural Citizenship in Nationalist China," *The Journal of Asian Studies* 65 (3): 529-548; Federica Ferlanti, "The New Life Movement in Jiangxi Province, 1934-1938," *Modern Asian Studies* 44, 5 (2010), 961-1000. For a recent contribution, see, Brian Kai Hin Tsui, "China's Forgotten Revolution: Radical Conservatism in Action, 1927-1949" (PhD Dissertation, Columbia University, 2013).

[409] Frederick Wakeman, "A Revisionist View of the Nanjing Decade: Confucian Fascism," 396.

[410] Arif Dirlik, ibid., 955-956; Federica Ferlanti, "The New Life Movement in Jiangxi Province, 1934-1938," 963.

recuperating China's native virtue (*guyou zhi dexing*), and turning the people's minds toward the correct revolutionary path (*geming zhi zhenggui*)."[411] "Native" (*guyou*; literally, "inherently possessing") was critical in imagining the past and ordering the present for a "new life." Similar to the Third Reich's revival of classicism, the KMT's purpose was to discipline the people's minds and bodies by reviving native glory and inventing a new architecture of being in modern space and time.

The biggest anathema for proponents of the New Life Movement was the abandonment of Chinese traditions, which they saw going on for at least a few decades, especially in linguistics and grammatology.[412] On the one hand were the unabashed destroyers of traditions, the communists, who wanted to eradicate Chinese characters completely. On the other hand was a widely-supported project to simplify the characters. But didn't simplification run counter to native traditions as well? How could the KMT accept such a position? Chiang Kai-shek was not certain about what side to take. In 1934, as the movement was growing at an unexpected rate, Chiang ordered Wang Shijie 王世傑, the Minister of Education, to investigate the possibility of implementing simplified characters.

On June 4, 1934, Wang wrote a long letter, and explained that the simplification of characters was necessary for expanding literacy, and that they were based on "native" (*guyou*) characters—in other words, characters were not created anew. Wang quoted in detail a letter he had received from Wu Zhihui in 1934, the head of the Preparatory Committee for the National Unification of Language. In his letter, Wu conceptualized the project as being as native as possible. In the

[411] Academia Historica (*Guoshi guan*, AH), 148000000001A; Guofangbu junshi qingbaoju; tewu chu zuzhi gongzuo kaizhan, 1934, 10: 015a. 國防部軍事情報局；特務處組織工作開展, 1934, 10: 015a.

[412] The seventh chapter will investigate in detail the effect of New Life Movement on the KMT's project to socially engineer communication, in which Phonetic Symbols (*zhuyin fuhao*) played a distinctive role.

words of Wu Zhihui, progressive dynasties had simplified writing piecemeal, and the KMT was going to be the last in this long chain of simplification. There were three pillars of the movement, all of which spoke to the needs of the KMT —national revival (*minzu fuxing*), cultural progress (*wenhua gaijin*), and linguistic unity (*yuyan tongyi*):

> From now on, writing Chinese characters will recuperate the two-thousand-year practice of simplifying characters. In January [1934], this committee has therefore penned 'A Proposal for Mining the Native and thus More Appropriate Simplified Characters,' and passed a resolution to first search and select appropriate characters to use as simplified characters, which is going to be edited as *A Record of Simplified Characters* (*jianti zipu*), and [the committee] will organize a commission to select these characters. As of now, the committee is in the process of selection. The simplification of Chinese characters is certainly not a fundamental reform. Therefore, [we] search and select the characters with less strokes from the cursive script (*caoshu*), running script (*xingshu*), and other scripts (*bieshu*).[413]

With Wu Zhihui's endorsement in hand, Wang proposed the following: first, characters were going to be selected according to their earlier use, and were not going to be invented. Secondly, after the publication of the first set of simplified characters, the Ministry of Education was to solicit ideas from all sides, and slowly increase the number of simplified characters. And lastly, the use of simplified characters was going to be limited in scope. For the time being, only general school textbooks, general reading materials, and primary school textbooks were going to be published with them.[414]

Wu Zhihui's letter explains the reason behind the title of Qian Xuantong's article. It was an endeavor to save the simplification movement from falling prey to the conservative voices inside the KMT, hence his choice of words "native, and thus more appropriate." The movement was too big to abandon, and an enormous amount of labor had been exerted by reformers. "Nativeness"

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[413] AH, 200000000A; Guomin zhengfu; Jiantizi tuixing faling an, June 7, 1935-May 30, 1947. (001090002008010a-15a) 今後書寫漢字字體，應恢復二千年來用簡體字之成規，故本年一月，本會又有「搜采固有而較適用之簡體字」之提議，議決先搜采較適用之簡體字，編為簡體字譜，再組織委員會選定。現在本會正在搜采中。惟漢字改簡，並非對於漢字為根本之改革。故若在草書，行書，別書，減筆字等中搜采固有之體而選用之。

[414] ibid.

had not been the primary objective of the movement, but given the unprecedented emphasis on native culture, it did not hurt to redefine the movement according to the party line, since text mining was after all a "native" project.

Handy Characters: Leftist Simplification?

Nativeness was not the only obstacle, however. By 1934, the movement was already out of the hands of the few that initiated it. The members of the Preparatory Committee, such as Wu Zhihui, Qian Xuantong, and Li Jinxi had been supporting the project since the beginning, but Lin Yutang's public endorsement through *Analects* had taken the movement to a different level. *Suzi* and the populism that it evoked was embraced by a large number of scholars, writers, and intellectuals with different political views and different opinions regarding the ultimate future of Chinese. In 1935, the momentum of simplified characters was almost too big to stand up against, but it was no longer unified.

The movement assumed a new life when Chen Wangdao 陳望道, along with other leftist script reformers, championed it in 1935. For liberal intellectuals like Lin Yutang, simplification was an end in itself. For leftists, on the other hand, it was a necessary first step towards a future Latinization of Chinese. In other words, creative destruction was the precondition for a future decisive eradication of Chinese characters.[415] As the seventh chapter will explain in detail, Latinization started as a socialist project in the USSR with the First Turcology Congress in 1926, and in the early 1930s, reached its zenith in China. Leftist writers unanimously agreed that the USSR-backed Latin Alphabet was the only option China had for the future. Lu Xun famously

[415] Ping, "'dazhongyu' gen 'shoutouzi,'" *Qinghua zhoukan*, vol. 43, no. 1 (1935), 54-55. For some, it was even the path to Esperanto. See, Jinhao Yang, "Cong shoutouzi dao shijieyu," *Qingnian jie*, vol. 8, no. 2 (1935), 5-6.

dubbed the Chinese characters as "tubercles" and "microbes" on the bodies of the masses, devouring the people.[416] Yet, many of the leftist writers were aware of the technical problems an abrupt alphabetical transition could engender. Chen Wangdao was one of them. As the chief editor of the influential magazine *Taibai* 太白, Chen saw merit in *suzi* and the simplification movement, for it closely resonated with the leftist project of creating a "language of the masses (*dazhongyu*)."[417] Chen joined hands with his comrades as well as more liberal scholars to promote the new simplified characters. For the time being, they all believed in the same cause.

In February, 1935, on the pages of *Shenbao*, intellectuals from diverse backgrounds jointly announced that they had cast typefaces for 300 simplified characters, or in their own words "handy characters (*shoutouzi*)," the characters in the hands of the masses. It was an important step in the promotion of simplified characters, for until then, there was no standard typeface to print them. The movement was at last carved in metals:

> We advocate the use of 'handy characters' to print so that the trouble imposed on the reader's memory by several forms of characters may be reduced. … Others have advocated the same earlier, but none put it into practice, and thus they had no impact. Now, we have decided to melt copper molds and cast typefaces to print 'handy characters' in books.[418]

Among the two-hundred supporters of the "handy characters" were a variety of people from different backgrounds including the psychologists and educators hitherto mentioned, and some famous leftist and liberal figures: Hong Shen, Zhang Yaoxiang, Liu Tingfang, Yu Dafu, Hu Yuzhi, Chen Wangdao, Lin Handa, Guo Moruo, Cai Yuanpei, Tao Xingzhi, Zheng Zhenduo, Ye Laishi, Lao She, and many others. (Fig. 5.16)

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[416] Xun Lu, "Guanyu xin wenzi [About the New Script]" (1934) in *Lu Xun lun wenzi gaige* (Shandong renmin chubanshe, 1979), 73.

[417] Shuyan Zhang et al. *Jianhua zi suyuan* (Beijing: Yuwen chubanshe, 2005 [1997]), 13.

[418] "Tuixing shoutouzi yuanqi," *Xinsheng zhoukan*, vol. 2, no. 6 (1935), 22.

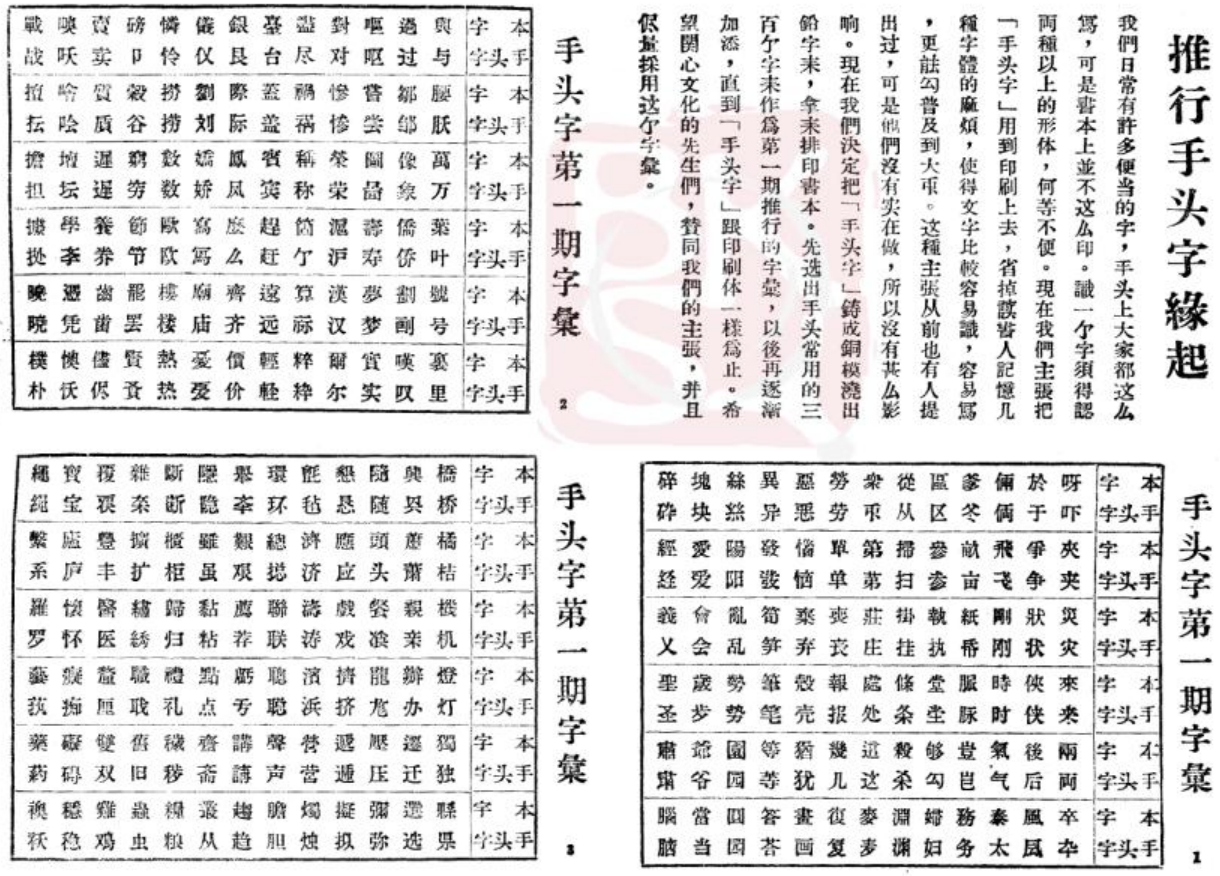

Fig. 5.16 — A selection from the 300 handy characters

In spite of the liberal voices in the project, the use of the term “handy characters” instead of “simplified characters” (*jiantizi* or *jianbizi*) was a political decision that signaled leftist involvement. Most of the characters were in fact the same with or very similar to the simplified characters, but some who signed the announcement, which read more like a short manifesto, claimed that “handy characters” were indeed different than “simplified characters.” Pan Guangrong **潘廣鎔**, a leftist and a Latinist, explained the difference as follows: “All handy characters are of course simplified characters, … [but] not all simplified characters are handy

characters, because some of them are not simplified according to habits [of writing]."[419] Pan only wanted "handy characters" that reflected the habits of the masses. He was annoyed by the more scholastic side of the project that involved thumbing through old dictionaries, characters, and calligraphic styles, which others had been praising along with the use of *suzi*. The character for "masses (*zhong* 衆)," for instance, was simplified as *zhong* 众 by Qian Xuantong and others, but according to Pan, it had to resemble the character 禹 without the three strokes in the bottom (冂 and 一), which, Pan claimed, conformed more with the masses' use.[420]

Pan also noted that handy characters were the first step towards an ultimate Latinization, a crucial difference that set handy characters apart from simplified characters. In addition, Pan was also proud to show the agency of the self-appointed representatives of the masses involved in casting handy-character typefaces. The Preparatory Committee's choice of simplified characters, and their demand that the government to cast typefaces for them, was passive. Handy-character team did not wait for the government to comply; they came, they cast, and they printed.[421] Not suprisingly, neither Lin Yutang nor Wu Zhihui nor Qian Xuantong was among the people who signed the manifesto for handy characters.

The simplification movement was not solely leftist by any means, but the leftist "hijack" of the project rubbed salt into the wound. Zhang Shuhuang 張樹璜, a scholar from Hunan known for his works on National Studies (*guoxue*), was furious. Zhang was against simplification projects of all sorts, but writing shortly after the manifesto, he exclaimed that "handy characters"

[419] Guangrong Pan, "Jianbizi yu shoutouzi," *Wenyuan*, vol. 1, no. 1 (1935), 1.

[420] ibid., 4.

[421] ibid., 3.

foretold nothing less than "national suicide (*zisha minzu*)."[422] Zhang was not alone in his animosity. Simplification *per se* was already standing on precarious grounds, and "handy characters" did not help its case at all.

A few months later, in August, 1935, the Ministry of Education promulgated the first set of 324 simplified characters, officially proposed by the Preparatory Committee.[423] The official publication of 324 characters had some peculiar characteristics. Only 193 of the characters were the same as the "handy characters" that were already cast and printed.[424] Moreover, the ministry's characters were lithographed, which indicated that the ministry had still not issued an order to cast typefaces for the characters. (Fig. 5.17) In terms of practical implementation, handy characters were winning the race, while the government was trying to distance itself from the leftists.

[422] Shu (Zhang Shuhuang), "Zisha minzu de shoutouzi," *Guoguang zazhi*, no. 6 (1935), 12.

[423] Ministry of Education (*jiaoyu bu*), *Jianti zibiao, di yi pi* (Ministry of Education, 1935).

[424] Shuyan Zhang, ibid., 16.

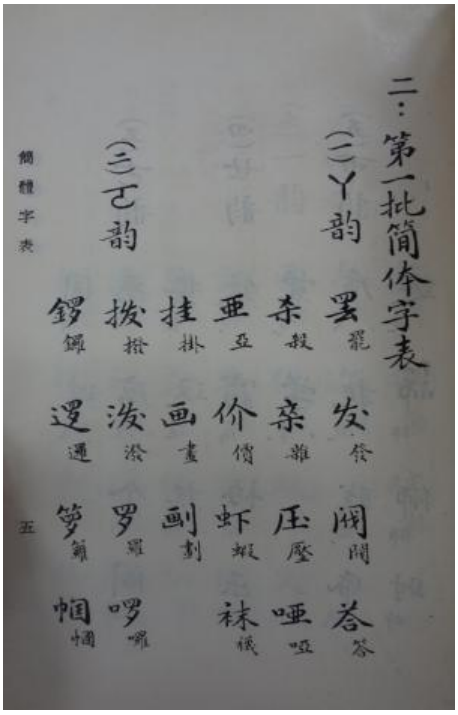

Fig. 5.17 — A Sample from 324 Simplified Characters

The distance was not enough for some in the KMT. Things were apparently not running smoothly. On October 8, Wang personally sent a telegram to Chiang Kai-shek, and again underlined that the selection of characters was delimited by native characters that had been in circulation for thousands of years, and that that they were not created anew. Simplification of characters, noted Wang, "respect[ed] native culture while helping the promotion [of characters]."[425]

But even the emphasis on nativeness was not enough. Opposition was still strong. In November, the governor of Hunan, for instance, called the simplification of characters "self-

[425] AH, Jiang Zhongzheng zongdong wenwu; yiban ziliao, 1935 (57), 1935/10/09, （002-080200 - 00255 - 025）蒋中正總統文物，002000001644A, 一般資料 - 民國二十四年（五十七）, 1935/10/09
（002-080200 - 00255 - 025）以千百年來固有通行之字為限，不自創新字籍，以尊重固有文化並利推行二簡字不論。

destruction of national essence (*zihui guocui*)."[426] In Taiyuan and Hong Kong, committees were established to lobby against simplification.[427] On January 17, 1936, the Political Committee of the Central Executive Committee decided in its fifth meeting to postpone the implementation of simplified characters. On January 22, the Central Executive Committee sent the order to all the government agencies to postpone the project.[428] On February 5, the Ministry of Education complied.

It is not clear what happened in the five months from the promulgation of the project to its postponement. Wang Shijie and the linguists of the Preparatory Committee did all in their power to narrate the movement as a "native" one that did not destroy Chinese culture, but the movement was still disliked by many in the party. More importantly, the support that simplification received from left-leaning intellectuals, who were simultaneously leading the increasingly popular Latinization movement, was certainly not welcomed by the KMT, since the party's *raison d'être* was strictly anti-communist. Although the records of the KMT's meetings are not available, it would not be too much of a stretch to claim that simplified characters could not escape the New Life Movement's counterrevolutionary and nativist persecution.

Conclusion

Even the government's order could not cut off the movement's momentum, however. In 1936, Rong Geng 容庚 published a dictionary of 4,445 simplified characters, and Chen Guangyao a list of 3150 frequently-used simplified characters (*changyong zibiao*). The support

[426] "Hunan sheng zhuxi he jian fandui tuixing jiantizi yuanwen," *Lun yu*, no. 77 (1935), 44.

[427] Shuyan Zhang, ibid., 17.

[428] AH, 200000000A; 8081a-82a, and 8084a.

for simplification continued in during the War Against Japan and the following Civil War, and finally, in 1956, the PRC officially recognized and implemented simplified characters. Creative destruction fulfilled its course.

Text mining, statistical calculations, inquiries into the Gestalt of characters and lines, and innovative interpretations of psycho-physiological habits have contributed to one of the most significant reform movements in Chinese history. Radical scholars of the period countered the colonial tendencies of the alphabet, and articulated a native response to the information age that intensified the demands on manual and intellectual output. They succeeded in reforming what they saw as the major obstacle to cognitive, scientific, and national progress. They succeeded in changing Chinese characters from within, "on their own terms."

Simplification was an effort to optimize manual and mental labor in the Chinese knowledge economy, and like the Mass Education Movement's intimate relationship with experimental psychology, the simplification project was also informed in various ways by psychological theories. Yet, the lack of a unified psychological theory of reading Chinese was also the grounds on which different proposals could be devised. Neither psychologists nor educators nor reformers discovered a well-defined method for absolute efficiency in mental labor. Reaching efficiency was thus never solely an experimental or mechanical project; from the very start, it was intertwined with political visions about the meaning of literacy and the future of the Chinese information society. Simplification was one expression of the politics of mental labor, but certainly not the only one.

"On their own terms" was not what everyone was looking for. Why should China stay on its own terms when all of Eurasia was buzzing with revolutionary destruction, from Turkey to Mongolia? Why should China stay on its own terms when even the Russians were willing to

Latinize the Cyrillic Alphabet? Why shouldn't China destroy its much-praised millenia-old tradition, and adopt a radically new interface to facilitate access to information? Was revolution *from within* really the best course of action?

The biggest rival to all reforms of the script, be it simplification or phoneticization, was the Latinization of Chinese. It was radically distinct and fundamentally different from other projects, and it was particularly intimidating for the creative destroyers of Chinese. Why? How could entail anything more than inserting Latin letters for Chinese phonemes? Why wasn't simplification enough for a Chinese information society? The answers to these questions take us far from the site of our story, for Latinization as a Eurasian project started in Istanbul in the 1860s.

Chapter 6

The Typographic Mind in the Russo-Ottoman World:

A Pre-History of the Chinese Latin Alphabet

Today, Chinese characters are transcribed with Latin letters, known as *pinyin*. *Pinyin* was first invented in 1958 by Zhou Youguang (1906 - 2017), and it became the official method of transcribing Chinese using the Latin alphabet. Since then, *pinyin* has remained mainly as an auxiliary tool for writing and learning Chinese. But *pinyin* grew out of an earlier movement, the Chinese Latinization Movement, that started in the 1920s in the Soviet Union. In fact, the first Chinese Latin Alphabet (CLA) was invented in the late 1920s through a collaboration between Russian philologists and Chinese communist intellectuals in Russia. The goal was not to create an auxiliary tool to simplify the process of learning the Chinese characters; it was to destroy them and everything they stood for, and adopt a writing system through which China could partake in an international and socialist informational order.

Every letter, literally, has a history, and this chapter is about the pre-history of the Chinese Latinized Letters. I would like to start off with trivial questions. Why was *yuyan* 語言 (language) transcribed as *yjan* in the 1930s? Or *Ladinghua* 拉丁化 (Latinization) as *Latinxua*? Why did the Chinese Latin Alphabet in the 1930s use "j" that later signified a "y" in pinyin? Or an "x" that later became "h"? Where did these letters come from? And why these letters and not others?

Scholars have already pointed out that Latinization of Chinese started in Moscow through a collaboration between Chinese dissidents such as Qu Qiubai, Xiao San, and Wu Yuzhang, and Russian linguists and philologists, namely, Kolokolov, Alekseev, Dragunov, and others.[429] In

[429] John De Francis, *Nationalism and Language Reform in China* (Princeton: Princeton University Press, 1950), 87-108. Terry Martin, *The Affirmative Action Empire: Nations and Nationalism in the Soviet Union, 1923-1939* (Ithaca: Cornell University Press, 2001), 199-200.

contrast, I would like to start the history of the Chinese Latin Alphabet (CLA) with the First All-Union Turcology Congress that convened in Baku, Azerbaijan, in 1926. The reasons for doing so brings me to the historical argument of this chapter and the next: Latinization was a Turkic project, the beginnings of which dated back to the 1860s in the Ottoman empire and Transcaucasia. It was only in the early 1920s that the Central Committee of the Soviet Union began supporting the Latinization of the Arabic alphabet, used widely in Central Asia; and Lenin allegedly claimed that Latinization was the "Revolution in the East."[430] The Central Committee, in other words, borrowed the "revolution" from the Turkic intellectuals, in particular the Azerbaijanis, and exported it to the non-Turkic world. The first Chinese Latin Alphabet known as the New Dunganese Alphabet, it turns out, was based on the Latin letters of the "Unified New Turkic Alphabet," which was invented after the First All-Union Turcology Congress primarily to Latinize all Turkic languages, and secondarily to Latinize all non-Turkic languages, of which Chinese was one. Most of the Chinese Latin Letters were taken from the Unified New Turkic Letters that replaced the old Arabic system of writing, which was used with slight variations across the Turkic, Persian, and Arab world.[431] As such, the responses to the questions above are

[430] There is no historical source that traces this dictum to Lenin himself. It was Samed Aga Agamalioglu, the leader of the Latinization movement in Azerbaijan, who narrated the following story in a book he published in 1925: according to Agamalioglu's account, in 1922, right after the Latinized "New Turkic Alphabet" made its debut in Azerbaijan, Agamalioglu visited Lenin in his dacha "Gorki," and Lenin asked him what the peasants thought about Latinization. Agamalioglu responded in the affirmative, and Lenin said, "That is the revolution in the East (это революция на востоке)." See: Agamaliogli, Neotlozhnye kul'turnye nuzhdy tiurko-tatarskikh narodov (Baku: Izdanie Komiteta Novogo Tiurkskogo Alfavita, 1925), 3. In 1928, Agamalioglu changed his recollections and claimed that what Lenin really said was "That is the great revolution in the East," which later became the slogan for the movement. Terry Martin, ibid., 187.

[431] I use "Arabic" to refer to the Turco-Persian-Arabic alphabet that was used in the Ottoman empire, Iran, and Central Asia. The Turco-Persian-Arabic alphabet was in fact a more elaborate version of the Arabic alphabet. The Arabic alphabet had 28 letters. The Persian alphabet added four more (ژ چ گ پ) to the existing Arabic alphabet, and Turkish added one more (ڭ). Until the early twentieth century, Ottoman and Turkic intellectuals referred to the Turco-Persian-Arabic alphabet simply as "alphabet" (elifba), "Ottoman alphabet" (elifba-yi osmani), "resm-i hat" (writing), or in some cases as the "Islamic alphabet" (islam elifbasi). Only in the twentieth century did the "alphabet" assumed a racial dimension and became the "Arabic alphabet" that did not conform to "Turkic" languages. For the purpose of simplicity, I will simply refer to the Turco-Persian-Arabic alphabet as the "Arabic alphabet."

simple: the "y" of CLA carries a secret Arabic *waw* و, the historical traces of which have been erased in scholarship. "J" concealed a secret *ya* ى, "x" a secret *ha* ح, "c" a *che* چ, "b" a *ba* ب, "k" a *qaf* ق, and so on.

This chapter is a pre-history of the Chinese Latin Alphabet. As such, it is not about China. The invention of the Unified New Turkic Alphabet, and its transformation into the New Dunganese Alphabet and Chinese Latin Alphabet will be the subject of the following two chapters. This chapter, instead, will trace the historical and technological origins of the Turkic Latinization movement that culminated in the First All-Union Turcology Congress in 1926. I will therefore disrupt the chronological order I have been building in the first five chapters in order to display the global complexity of information flow and scripts, and to show how a non-Chinese and non-Euro-American reform movement played a central, if indirect, role in the history of information and language in China.

Script reform in the Russo-Ottoman world started in the 1860s in Istanbul, the capital of the Ottoman Empire, and Tblisi, the capital of Transcaucasia, the polyglot region in the Russian Empire that roughly corresponded to present day Georgia, Azerbaijan, and Armenia. Muslim and non-Muslim intellectuals argued for the first time that the Arabic script prevented the world of Islam from achieving civilizational progress, and started proposing new phonetic alphabets, not unlike the phonetic movement in China in the late nineteenth century. Why did the Arabic script become one of the most hotly debated subjects and tinkered with objects in the Russo-Ottoman world in the nineteenth and early-twentieth century? What were the underlying infrastructural and technological changes that simultaneously gave rise to demands for script reform in Qing, Russian, and Ottoman Empires?

The purpose of this chapter is not to offer a comprehensive history of script reforms in the multi-ethnic worlds of the Ottoman and Russian Empires, which would require a separate dissertation, but rather to offer a framework to consider the history of Arabic script reforms in these two empires as intimately tied to one another, and eventually to a greater Eurasia that included China. In doing so, this chapter addresses an issue that has not received the attention it deserves in the history of the Muslim reform movement in an interconnected Russo-Ottoman space. Earlier scholarship on the nineteenth-century Muslim reform showed the centrality of print in the dissemination of reformist ideas and the imagination of new political landscapes, where the new "imagined community" initially corresponded to a Pan-Islamist entity before a national one.[432] Instead of an Andersonian approach that prioritizes the *discursive* effects of printing, I would like to approach the question of reform from an angle that reorients the focus on the *material* effects of printing and information management.

The history of script reform in the Russo-Ottoman Muslim world, akin to that in China, was a product of the global information age of the nineteenth century, with the widespread use of the movable type and introduction of the telegraph into the Ottoman empire in 1855. Even though telegraphic communication posed a challenge to the Arabic script, I am cautious in approaching the impact of the telegraph on the script, for the crisis was not as sharp as it was in China. The Arabic script was not entirely phonetic, much like the Roman Alphabet, but it was still composed of individual signs, some of which signified more than one sound—hence the trouble in communication, as I will explain in this chapter. Although at first a Latin Alphabet with a French pronunciation was used to transcribe Ottoman Turkish telegrams, the first Morse Code for the Arabic alphabet was invented in 1856 by Mustafa Efendi and Volich Efendi. In 1877, a certain

[432] Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (London: Verso, 1983)

Izzet Bey reformed the Arabic Morse Code, and put it into use throughout the empire.[433] Despite the initial years of confusion caused by two different writing systems to transcribe telegrams, the Arabic script did not need an extra medium, such as the four-digit numbers for Chinese, to be translated into dots and dashes. Technically, the Arabic script did not provide the barrier that the Chinese script did.

The circulation of information that the telegraph expedited is beyond doubt, but the first script reformers were concerned more with the movable type than the telegraph, positing the former as the main—or at least the most "visible"—agent of grammatological change. The significance of the printing press in the Islamic world has been pointed out by several scholars, who rightfully claimed that the import of printing presses increased the circulation of knowledge in the Islamic world, helped spread reformist ideas.[434] In this section, I am more interested in the material process of pressing metal types on a page, and how that process of production created a techno-human, a Typographic Muslim, defined in the image of the movable type, in the *techne* of the metal signs, known in the typographical jargon as "sorts." Starting in the 1830s, the movable press was gaining popularity in the Ottoman Empire, and it was no coincidence that the first

[433] Nesim Yazıcı, "Osmanlı Telgrafında Dil Konusu," *Ankara Üniversitesi İlahiyat Fakültesi Dergisi*, vol. 26 (1983), 751-764.

[434] Elizabeth L. Eisenstein, *The Printing Press as an Agent of Change: Communications and Cultural Transformations in Early Modern Europe* (New York: Cambridge University Press, 1979); Benedict Anderson, *Imagined Communities*. The printing press did not lead to the extinction of the dissemination of Islamic knowledge. As Adeeb Khalid notes, lithography was incorporated into the existing social structure, and it helped reproduce the same patterns of producing and disseminating Islamic knowledge in Central Asia. See, Adeeb Khalid, "Printing, Publishing, and Reform in Central Asia," *International Journal of Middle East Studies* 26 (1994), 187-200. On the printing presses in the Arab world, see: George N. Atiyeh, "The Book in the Modern Arab World: The Cases of Lebanon and Egypt," in *The Book in the Islamic World: The Written Word and Communication in the Middle East*, edited by George N. Atiyeh (Albany: State University of New York Press, 1995), 233-253. Geoffrey Roper, "Faris al-Shidyaq and the Transition from Scribal to Print Culture in the Middle East," in *The Book in the Islamic World,* 209-231. My analysis follows Nile Green's approach to Perso-Arabic typography as an extension of the industrialization of printing industries, which differs from the above-mentioned works. See: Nile Green, "Persian Print and the Stanhope Revolution: Industrialization, Evangelicalism, and the Birth of Printing in Early Qajar Iran," in *Comparative Studies of South Asia, Africa, and the Middle East,* vol. 30, no. 3 (2010), 473-490.

proposal for script reform spoke of the deficiencies of the Arabic alphabet in print business. What started as typographical problems was immediately reformulated as cognitive difficulties—the Arabic alphabet caused ambiguity in meaning, time lag in comprehension, and optical confusion. The cognitive skills of reading and understanding were now contested by the presence of the movable type, a transformation that demands a move away from "discourse," and a renewed focus on the production of information, at the center of which was the script. The metal type case was the new Muslim mindset. Script reforms, in short, signaled the history of a new integration between the human and the machine.

The movement started in Istanbul, as I describe in the first section, but moved to the Crimea and Transcaucasia from the 1880s onward, when the Ottoman Sultan Abdulhamid II's (r. 1876-1909) regime of censorship brought the movement to a temporary halt in the Ottoman Empire. The second section turns to the possibilities that the new information infrastructure offered for different political projects in the Crimea and Transcaucasia. In the Crimea, the renowned Muslim reformer Ismail Gasprinskii (1851-1914), who initiated the Muslim reform movement *jadidism* that quickly spread to Central Asia, repurposed the Ottoman typographical reform to introduce a new pedagogical method to the Muslim world in Russia and beyond. For Gasprinskii, a reformed script combined with a new pedagogy could beget a common literary medium that could be used throughout the entire Turco-Muslim world, even if the Turco-Muslim that spanned the Eurasian continent spoke in various tongues, some of which were mutually incomprehensible. The challenge to Gasprinskii's Pan-Islamist/Turkist project came from within the *jadidist* movement. In 1903, Gasprinskii had a long dispute with Mohammad Shakhtakhtinskii (Mehemmedaga Shahtahtli) who started publishing his own journal *Russian East* (*Sharq-i Rus*) in colloquial Azeri speech in Tblisi and invented his own script for Azeris, in defiance of Gasprinskii's call

for unification. This hitherto unexplored debate made transparent the language politics involved in script invention, and initiated a new stage in thinking about typography and vernacularism in the Turco-Muslim world. Much like the late-Qing scholars, who sought an alphabet to unify speech without knowing what speech to unify, the modern alphabetical regime put diverse local speeches under the spotlight in the Russo-Ottoman space, although the Turkic linguistic diversity lacked a unified state, as opposed to China.

The dispute grew even larger with the start of the Russian reform movement after the defeat in the Russo-Japanese War (1904-1905) and the Young Turk Revolution in the Ottoman Empire (1908) that overthrew the Hamidian regime and instigated an era of constitutional reform. The third section briefly charts the two decades of script reforms in the Russo-Ottoman imperial and post-imperial space, that witnessed a heightened awareness of technologization, nationalist language projects, the Bolshevik Revolution, and the fall of the Ottoman Empire. The intensified reform project culminated in the promulgation of the Latin Alphabet in Soviet Socialist Republic of Azerbaijan in 1924, which was later modified into the Unified New Turkic Alphabet in the First Turcology Congress in 1926, which will be the subject of the next chapter.

I. Re-Orienting Reform: Typographic Muslim in the Russo-Ottoman World

Script reform in the Russo-Ottoman world started almost simultaneously in Istanbul in the Ottoman empire and Tblisi in Transcaucasia. Munif Pasha (1830-1910), the founding director of the Ottoman Society of Sciences and the Chief Interpreter at the Ottoman Sublime Porte, and Mirza Fathali Akhundzade (Akhundov) (1812-1878), the famous Azeri playwright and interpreter to the Russian viceroy of Caucasus, were the two figures who for the first time demanded that a complete transformation of the Arabic alphabet was needed to ensure scientific

and literary progress.[435] Munif Pasha delivered a speech at the newly founded Ottoman Society of Sciences in 1862 on the deficiencies of the "method of writing" (*usul-u resm-i hat*) and the need for a reform in the script in order to facilitate the acquisition, accumulation, and dissemination of information and knowledge. A year later, Akhundzade travelled to Constantinople to present his proposal for reform, which he was working on since 1857, to the Ottoman Society of Sciences. Why was the Arabic alphabet all of a sudden "deficient"?[436]

Munif Pasha and Akhundzade's sudden awareness of the deficiencies of the Arabic letters, which I will explain in detail below, had one major reason: the movable type and the increased circulation of information that it enabled in non-Arabic scripts. Although non-Muslim populations had brought in the technology of the movable type into the Ottoman empire in the late fifteenth century, Arabic letterpress entered the Islamic world much later than in Europe. A few books in Arabic letters were published in Europe in the sixteenth and seventeenth centuries, but the first official publishing house in the Islamic world was established by Ibrahim Muteferrika (1674-1745), of Hungarian origin, in Constantinople in 1727. Muteferrika's printing press never reached the output of its contemporaries in Europe. A total of seventeen books were published by Muteferrika from 1729 until his death in 1745, and his successors published seven more in the following decades. Starting with Sultan Selim III's reform movement in the late eighteenth century, two more printing presses were established in Istanbul, but during the Kabakci Mustafa uprising in 1807, printing business halted again and did not pick up momentum

[435] In 1851, Cevdet Pasha wrote that the Arabic alphabet should be modified, but he did not propose anything concrete. Geoffrey Lewis, *The Turkish Language Reform: A Catastrophic Success* (Oxford: Oxford University Press, 1999), 28; M. Kayahan Özgül, *XIX. Asrın Benzersiz bir Politekniği: Münif Paşa* (Istanbul: Dergah Yayınları, 2014 [first edition, Elips Kitap, 2005]); Iraj Parsinejad, *Mirza Fath Ali Akhundzadeh and Literary Criticism* (Tokyo: Institute for the Study of Languages and Cultures of Asia and Africa (ILCAA), 1988). In this section, I confine myself to Akhundzade's impact on the Russo-Ottoman world.

[436] I will limit my analysis to the Ottoman empire. The impact of the movable type in Transcaucasia, despite its connection to the Ottoman empire, demands an in-depth analysis, which exceeds the limits of this chapter.

until after the Tanzimat Reforms in 1839, which aimed to modernize the empire politically, economically, and institutionally.[437] Between 1729 and 1830, it is estimated that there were only 180 books published by these Turkish printing houses.[438]

Although Arabic letterpress was not popular in the Islamic world until the onset of the Tanzimat era (1839-1876), a period of rapid modernization in the Ottoman Empire, the history of printing in the Islamic world cannot be limited to Arabic-lettered printing. Jews, Greeks, Armenians, and missionaries living in the Ottoman Empire were publishing in their respective scripts and languages before and after Müteferrika's press.[439] In fact, the metal typefaces for the Muslim printing presses mentioned above were engraved and cast by Jews and Armenians.[440] Among the non-Muslim communities living in the Ottoman Empire, the Armenians' impact on the history of printing is especially important to our understanding of the complexity of language and script in the Ottoman empire.

Armenians were very quick to adopt the movable type in the sixteenth century from Europe, and bring it to the Ottoman empire. In the following centuries, Armenian matrices were seen virtually everywhere in the world—from Russia to India, Egypt to America. Apkar Tıbir

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[437] The second press, known as "Darü't Tıba'a" or "Mühendishane Matbaası," was established in 1796, and the third press, "Darü't Tıba'atü'l Cedide" or "Üsküdar Matbaası," in 1802. Turgut Kut and Fatma Ture, *Yazmadan Basmaya: Müteferrika, Mühendishane, Üsküdar* (İstanbul: Yapı Kredi Yayınları, 1996), 3-12; Franz Babinger, *18. Yüzyilda İstanbul'da Kitabiyat*, trans. Nedret Kuran-Burçoğlu and Machiel Kiel (İstanbul: Tarih Vakfı Yurt Yayınları, 2004); Orlin Sabev, *İbrahim Müteferrika ya da İlk Osmanlı Matbaa Serüveni*, trans. Orlin Sabev, (Istanbul: Yeditepe Yayinevi, 2006). Starting in 1831, lithography was introduced by Henry Carol, and became a popular method of printing in the Ottoman Empire. Yet, lithography could never provide the speed needed for the quick circulation of journals and newspapers. On lithography in the Ottoman Empire, see, Selim Nüzhet Gerçek, *Türk Taş Basmacılığı*, (İstanbul: İstanbul Devlet Basımevi, 1939).

[438] Jale Baysal, *Müteferrika'dan Birinci Meşrutiyete Kadar Osmanlı Türklerinin Bastıkları Kitaplar* (İstanbul: Edebiyat Fakültesi, 1968), 13-14.

[439] The first press was established by the Jews in 1492; Armenians followed in 1567, and Greeks in 1627. Selim Nüzhet Gerçek, *Türk Matbaacılığı: Müteferrika Matbaası* (İstanbul: Devlet Basımevi, 1939), 26-31.

[440] Turgut Kut and Fatma Ture, ibid., 9. In Ibrahim Muteferrika's press, Jonah ben Jacob Ashkenazi cast all the metal typefaces. Originally from Poland, Ashkenazi made Istanbul a center of Hebrew publishing. Bogos Arabyan was the other engraver who worked at Muhendishane and Uskudar presses.

established the first Armenian printing press in 1567 in Istanbul, and published the first books in the Armenian language. Armenian printing presses proliferated in the eighteenth century, and some of the Armenian printers started casting metal typefaces for non-Armenian letters as well. Most famously, Bogos Arabyan (1742-1835) travelled to Tbilisi to cast metal typefaces for the Georgian script, and published books in Georgian. He also cast Arabic letters in different typefaces in Istanbul, and was appointed the director of the Government Printing Press, "Takvimhane-i Amire," and printed the first official Ottoman Turkish journal *Calendar of Facts (Takvim-i Vekayi)*, which started publication in Ottoman Turkish in 1831, and in Armenian in 1832.[441] The most famous Arabic metal type casters during and even after the Tanzimat were all Armenians, most notably Bogos Arabyan, Ohannes Mühendisyan (1810-1891) and Haçik Kevorkyan (1850-1932). During the nineteenth century, dozens of more Armenian presses were opened throughout the empire, and it can safely be stated that the Armenians were unequivocally the leading typographers in the Ottoman empire.[442]

During the nineteenth century, Istanbul was one of the biggest centers of the Armenian publishing world. Indeed, Armenians were not only publishing in Armenian but also in Ottoman Turkish using the Armenian alphabet. During the Tanzimat era, the first newspapers in the Ottoman Empire such as the above-mentioned *Calendar of Facts (Takvim-i Vekayi)* or the private newspaper *Record of Events (Ceride-i Havadis)* also started publication in Armenian-lettered Ottoman Turkish. Soon, there were dozens of newspapers written in Ottoman Turkish using Armenian letters: *Journal of Events [Mecmua-i Havadis]* (1852-1877), *Constantinople News*

[441] It is important to note that the publication of *Calendar of Facts* followed Kavalali Muhammad Ali Pasha's *Egyptian Facts* (*Vakayi-i Misriyye*; first issue was published in 1828), published in Cairo in the printing press "Bulak," founded under Muhammad Ali Pasha in 1822. Orhan Koloğlu, "Osmanlı Basını: İçeriği ve Rejimi," *Tanzimat'tan Cumhuriyet'e Türkiye Ansiklopedisi,* vol. 1 (Istanbul: Iletisim Yayinlari, 1985), 70.

[442] Pars Tuğlacı, "Osmanlı Türkiyesi'nde Ermeni Matbaacılığı ve Ermenilerin Türk Matbaacılığına Katkısı," *Tarih ve Toplum*, no. 86 (1991), 48-56.

[Ahbâr-ı Konstantaniye] (1855-1858), *Journal of Sciences [Mecmua-i Fünûn]* (1863), *Paper of Events [Varaka-i Havadis]* (1864-1870), and dozens more.[443] Ahmed Ihsan (Tokgöz), one of the leading publishers at the turn of the century in Istanbul, recalls how he used to read these newspapers and journals, as well as translated Turkish literature published in the Armenian alphabet, for the number of Arabic-lettered Ottoman Turkish books on Western sciences and literature could not reach that of the Armenian-lettered Ottoman Turkish journals and books.[444]

Some of the Turkish publications in Armenian letters, such as *Journal of Events* and *Paper of Events,* were on scientific advancements in Europe, and they found a place in the reading room of the Ottoman Society of Sciences, of which Munif Pasha was the president.[445] In fact, nine out of thirty-three founding members of the Ottoman Society of Sciences were Armenians.[446] By the end of the nineteenth century, Ahmed Midhat Efendi, one of the leading literary figures in the Ottoman Empire, was praising the richness of the Armenian alphabet, presses were publishing textbooks on how to read Armenian letters, and in 1883 a certain Macid Pasha even proposed that the Arabic alphabet should be replaced with Armenian.[447]

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[443] For a complete list of the journals published in Turkish with Armenian letters, see, Hasmik A. Stepanyan, *Ermeni Harfli Türkçe Kitaplar ve Süreli Yayınlar Bibliyografyası (1727-1968)* (Istanbul: Turkuaz Yayınları, 2005), 552-617.

[444] Ahmed Ihsan Tokgöz, *Matbuat Hatıralarım*, yayına hazırlayan: Alpay Kabacalı (Istanbul: İletişim Yayınları, 1993), 35. On Armenian translators in the Ottoman empire, see, Arsen Yarman, *Ermeni Yazılı Kültürü: Harf, Elyazması, Matbaa ve Salnameler Tarihine Kısa Bir Bakış* (İstanbul: Türkiye Ermenileri Patrikliği, 2012).

[445] Ali Budak, "XIX. Yüzyılda Osmanlı Ermeni Basını ve Devletin Rejim Üzerine Çarpıcı bir Polemik," in *Hoşgörüden Yol Ayrımına Ermeniler*, eds. Metin Hülagü, Şakir Batmaz, Gülbadi Alan (Erciyes Üniversitesi Yayını, 2009), 189.

[446] Ali Budak, "Contributions of the Armenians Over the Constitution of a New Social Life and Literature in the Nineteenth Century," *Ozean Journal of Sciences 1 (1)* (2008), 73.

[447] Rekin Ertem, *Elifbe'den Alfabe'ye: Türkiye'de Harf ve Yazı Meselesi* (İstanbul: Dergah Yayınları, 1991), 258. Nergis Erturk notes that Macid Pasha later denied that he made such a proposal. See Nergis Ertürk, *Grammatology and Literary Modernity in Turkey* (Oxford: Oxford University Press, 2011), 67. For the textbooks on how to read Armenian letters, see, Hacı Begzade Ahmet Muhtar Efendi, *Osmanlıca Bilenlere Dört Günde Ermenice Okumanın Usulü* (Poyaciyan Agob Matbaasi, 1308 [1892]); Artin Kayseryan, *Elifba-yı Lisan-i Ermeni* (İstanbul: Kasbar Matbaası, 1308 [1891]); Artin Kayseryan, *Altı Saatte Ermenice Tamamıyle Okuyub Yazmak* (İstanbul: Kasbar

The presence of Armenian letters in the history of Ottoman Turkish printing demonstrates the complexity of media in the circulation of scientific and literary knowledge between Europe and the Ottoman Empire. The Ottoman intellectuals were in close contact with the booming Latin-lettered publishing industry in Europe, and they were no less aware of the advancements in Armenian publishing in the Ottoman Empire. Indeed, many printing presses, including the state's official printing house (*matbaa-i amire*) and that of the Ottoman Society of Sciences (*cemiyet-i ilmiye-yi osmaniye matbaası*), had both Armenian letters and Arabic letters side by side. It might be too far-fetched to claim that the Ottoman script reform started simply as an extension of the Armenian printing business, but the perceived deficiency of the Arabic script for typographical purposes was, at least partially, articulated through the Ottoman intellectuals' first-hand encounter with the simplicity, and as some Ottoman intellectuals put it, the "perfection," of the Armenian script along with the Latin script.[448] Technically, the Armenians' access to the European civilizational database was ostensibly easier and faster than the Ottoman Turks, since the Armenian Alphabet, like the Latin alphabet or the Russian alphabet or the Georgian alphabet, was written with separate letters, and when compared to the Arabic alphabet, the number of sorts, i.e., the metal type case, was significantly smaller, as I will explain below. Compared to the economy of letters present in the Armenian and Latin Alphabets, the Arabic Alphabet was considered cumbersome.[449] Not surprisingly, both Munif Pasha and Akhundzade claimed that the

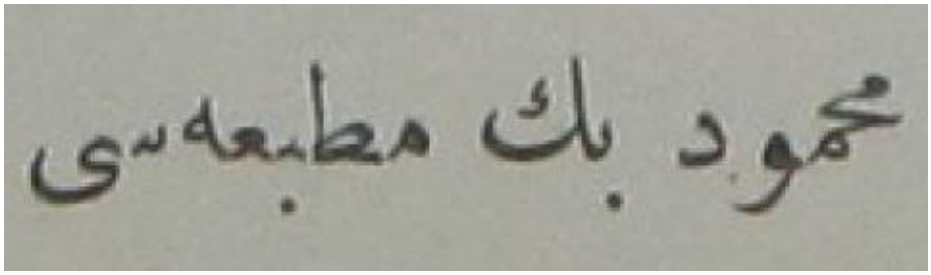
Matbaası, 1896); Ahmed Muhtar, *Kendi Kendine Ermenice yahud Mükemmel Ermenice Elifba* (İstanbul: Artın Asaduryan ve Mahdumları Matbaası, 1333 [1917]).

[448] Ebüzziya Tevfik, about whom I will write more later, was one such figure. Ebüzziya Tevfik, "Yine ıslah-i huruf davası," *Mecmua-i Ebüzziya*, no. 42, (1302 [1884]), 1341.

[449] Tblisi also provides a good example. According to the Armenian historian Teotig's notes from 1912, it was the largest center of Armenian publishing in Russia after Moscow, and also home to publishing in the Russian and Georgian alphabets, which were all written with separate letters. Teotig, *Baskı ve Harf: Ermeni Matbaacılık Tarihi*, translated by Sirvart Malhasyan and Arlet Inciduzen (Istanbul: Birzamanlar Yayincilik, 2012), 233.

Arabic Alphabet was the biggest obstacle in typographical advancements and progress in the world of Islam.

Akhundzade and Munif Pasha were clear about the deficiencies of the Arabic Alphabet, and the points they put forward did not change much until the 1920s. Firstly, and most importantly, each sign in the Arabic Alphabet was written differently depending on their position in the word. Each letter therefore had a different glyph at the beginning, the middle, and the end of a word, and a fourth glyph as an isolated sign. Akhundzade gave the example of *'ayn* ع, which was عـ as the initial, ـعـ in the middle, and ـع in the final form. In typography, the absence of separate letters as in the Latin Alphabet required four different sorts for each letter; also, depending on the typeface, the connection of letters could show variation, thereby demanding the engraving of extra sorts for combined letters. The name "Mahmud" offers a good example. Written with the letters "*mim* م," "*ha* ح," "*mim* م," "*waw* و," and "*dal* د," *Mahmud* in today's Unicode can be typed as follows: محمود. Yet, in the common calligraphic style of the time, known as *naskh*, the same word was written as seen on the right side of the following image.



I took the image above from a book on typefaces published in 1906/7, and I zoomed in to show how the Arabic letters connect with one another.[450] The image reads "Mahmud Beg

[450] *Mahmud Bey Matbaası m*ürettibhanesinde mevcud hurûf*at, ç*izgi, çiçek ve kalıpların birer numunesini muhtevi *katalog* (Mahmud Beg Matbaasi, 1322), no page number.

Matba'ası" (Mahmud Beg Press) from right to left. The first word on the right is the name "Mahmud," which is significantly different from محمود. If we look closely at the image, we can see a small gap between the first three letters (*mim*, *ha*, *mim*) and the fourth letter *waw* و, which is because there was only one sort that combined the first three letters, *mim+ha+mim,* and then a separate sort, *waw*, to maintain the calligraphic principle of *naskh*. *Naskh* demanded metal typefaces that combined multiple letters at once. Again, if observed closely, it will be clear that the word on the left (*matba'ası*) was typed in using completely separate sorts, for there are small gaps in between the letters, showing the traces of a typesetter's labor in picking sorts from the type case and arranging them on a stick. Yet, those letters, when combined with other letters, also demanded the casting of combined signs. For instance, *nun* ن and *ye* ي, *lam* ل and *mim* م, *nun* ن and *cim* ج, and dozens of more signs had to be combined with one another in order to cast one single sort that conformed with *naskh*. This practice had started with the very first printing presses in Arabic, and continued from then on. But the end result was a type case that was significantly larger than any separate-lettered language's type case—Latin, Armenian, Georgian, Russian, etc. In short, this system of writing demanded an elaborate practice of typesetting that used more than 500 signs as opposed to less than a hundred in separate-letter writing systems; and thus, the early script reformers believed, it caused an unnecessary loss of labor and use of resources. The result was even worse in other calligraphic typefaces, such as the *ta'liq*, which was considered to be aesthetically superior to *naskh,* but which according by some accounts required a type case of 1600 to 2200 signs.[451]

[451] The first ta'liq typeface was cast by Bogos Arabyan, and he was rewarded by the sultan for his services. When Muhendisyan invented his much-praised ta'liq typeface, it required 2200 signs. Hacik Kevorkyan later reduced it to 1600. Turgut Kut, "Matbaa," *TDV İslam Ansiklopedisi*, vol. 28 (1988-2012), 113.

Secondly, the designation of consonants in the Arabic alphabet was through the placement of dots below or above given marks, which, according to the reformers, caused time lag in reading. For instance, the consonants *be* ب, *pe* پ, *nun* ن, *te* ت, and *se* ث were susceptible to optical confusion, especially when handwritten, leading to an unnecessary waste of mental labor for the reader. Akhundzade's strict stance against the dots was also an extension of the movable press. Typography was the artistic technique of casting and maintaining a letter within the bounds of a metal square. Once the metal typeface was cast, the letters were trapped in exactness with all the dots that belonged to them. Compared to the mechanical precision of the press, the hand was a sloppy imitator. It could misplace or misrepresent the dots, distort signification, and obfuscate the mind.

And thirdly, the Arabic letters lacked sufficient signs for vowels, which produced semantic ambiguity in the written word, and time loss in its comprehension. As all the reformers in the twentieth century were fond of showing, *waw* و could be pronounced as an "o," "ö," "u," "ü," or "v" depending on the word. As Munif Pasha himself noted, اون could be pronounced in three different ways, and كورك in six.[452] Most famously, "to be" (*ol-mak*) and "to die" (*öl-mek*) were written with the same letters. Ambiguity in writing was literally a life-and-death issue.[453]

The lack of vowels was the biggest problem for Munif Pasha. He articulated typographical problems also as cognitive difficulties that obstructed progress in sciences and literature. The lack of vowels caused hardship in comprehension, which, according to Munif Pasha, could be

[452] اون can be pronounced as *on* (ten), *ön* (front), and *un* (flour). كورك can be pronounced as *kürk* (fur), *gevrek* (crispy), *görk* (beauty), *kürek* (oar), *körük* (bellow), and *görün* (see).

[453] M. F. Akhundov, *Eserleri, Cilt 3, Sechilmish Maktublar* (Baky: Azarbaycan Dovlet Nashriiiaty, 1955), 97-111; Munif Pasha, "Islah-ı resm-i hatta da'ir ba'z tasavvurat," *Mecmua-i Fünun,* no. 14 (1280), 70-71, 75; S. Agamalioglu (Agamali-oglu), *Neotlozhnye kul'turnye nuzhdy tiurko-tatarskikh narodov* (Baku: Izdanie Komiteta Novogo Tiurkskogo Alfavita, 1925), 23-24; Fevziye Abdullah Tansel, "Arap Harflerinin Islahı ve Değiştirilmesi Hakkında İlk Teşebbüsler ve Neticeleri," *Belleten*, vol. 7, no. 65-68 (1953), 224-226. For the similarity between "to be" and "to die," see, Nergis Erturk, ibid., 3.

overcome either by positioning diacritics to signify vowels (known as *harekat*) below or above a given letter, or simply writing in separate letters. Diacritics were not new. *Fathah*, *kasrah*, and *dammah* were already in use to put on letters to signify a short "a," "i," or "u." The word *fathah,* for instance, could be written without the diacritics as *fthh* فتحه , or with the diacritics as فَتْحَه— with a short diagonal line placed above "f" and "h" to give the sound of "fa" and "ha," and a small circle on "t" to signify that it stands alone as a consonant. Munif Pasha, however, was not satisfied by the use of diacritics, for even with diacritics, it could still be hard to determine which line the diacritics belonged to, which would cause "mental confusion" (*teşviş-i zihni*) and "waste of thought" (*sarf-ı efkar*). An exact representation of a given word was necessary to optimize its semantic entry into the mind. The only method to dissipate this cognitive difficulty, according to the reformers, was through writing in separate letters (*huruf-u mukattaa* or *huruf-u munfasıla*).[454]

When Munif Pasha delivered his landmark speech in 1862, Akhundzade deemed it worth to travel to Constantinople to offer his own script proposal. Akhundzade had first pondered the problem of the script in 1857, and his first proposal was a reformed version of the Arabic letters. The signs of the letters were similar to Arabic letters, but each sign was written separately, each vowel was signified with an extra letter, and all the signs were invented so that they could be written in conjunction, yet retain their independence. In 1863, he arrived and presented his proposal to the Ottoman Society of Sciences. The Ottoman Society of Sciences convened twice to discuss the proposal, and praised the merits of the alphabet. The elimination of dots and the inclusion of vowels were sufficient to produce the correct reading of words, and they provided greater ease in printing, but since such a radical reform would necessitate the publication of all

[454] Munif Pasha, ibid., 76-77.

the extant literature once more in the new alphabet, the Ottoman Society of Sciences rejected the proposal.[455]

Akhundzade went back to Tbilisi without having made much progress. But he was still adamant. Since the Ottoman door was closed for the time being, he decided to promote his ideas in Iran. In 1868, he sent a new proposal, this time to the Iranian consul Mirza Yusuf Khan in Paris. Until he died in 1878, he wrote dozens of more letters to the Ministry of Foreign Affairs in Iran, to Nazir al-Mulk Mahmud Khan, to the Ministry of Education in Iran, to the Ottoman Grand Vizier Ali Pasha, and to the president of the Ottoman Society of Sciences Munif Pasha.[456] Almost all fell on dead ears.

The only person that followed Akhundzade was Malkom Khan (1833-1908), an Iranian Armenian who met Akhundzade when the latter visited Istanbul in 1863. Malkom Khan lived in Istanbul from 1862 to 1872 as a special adviser to the Iranian ambassador. Acquainted both with Munif Pasha and Akhundzade, Malkom Khan believed that the lack of discipline and education in Muslim children, the "backwardness" of the Islamic world, and the "absence" of law and order were all due to the deficiency of the Islamic alphabet.[457] In 1868, he wrote a petition to the Ottoman Grand Vizier, and proposed the use of separate letters with only one sign for each letter.[458] When the Council of State rejected the proposal, Malkom Khan publicized it, which

[455] Tansel, ibid., 226.

[456] Akhundov, *Eserleri*, 69-71, 87-88, 88-89, 97-111, 116-119; F. Agazade and K. Karakashly, *Ocherk po istorii razvitiia dvizheniia novogo alfavita i ego dostizheniia* (Kazan: Izdanie VTsK NTA, 1928), 20; Hamid Algar, "Malkum Khan, Akhundzada and the Proposed Reform of the Arabic Alphabet," *Middle Eastern Studies,* vol. 5, no.2 (May, 1969), 117-118.

[457] Tansel, ibid., 231.

[458] Erdem Aydin, "Sultan Abdülaziz Döneminde Alfabe Tartışmaları: "Huruf-i Mukatta"" ve Geç Tanzimat Zihniyeti", Unpublished paper presented at Sultan Abdülaziz ve Dönemi Sempozyumu, Türk Tarih Kurumu (Turkish Historical Society), 2014.

caused a minor stir in the Ottoman intellectual community, with Namik Kemal (1840-1888), one of the literary giants of the day, vehemently opposing the project.[459]

The main difference between Malkom Khan's script and Akhundzade's was that the former retained the dots in Arabic letters, showed vowels through diacritics, and even though Malkom Khan also wrote each letter separately, the letters did not connect in a standardized way, as in Akhundzade's proposal. Although at first criticized by Akhundzade, the two figures continued collaborating in the 1870s in an effort to reform the Arabic Alphabet. Akhundzade later also broke away from his earlier project to keep the design of the letters similar to their originals, and created an alphabet that was a mix of Latin and Cyrillic letters.[460]

[459] Tansel, ibid., 227-233.

[460] F. Agazade And K. Karakashly, ibid., 19.

Fig. 6.1 - Malkom Khan's Separate Letters[461]

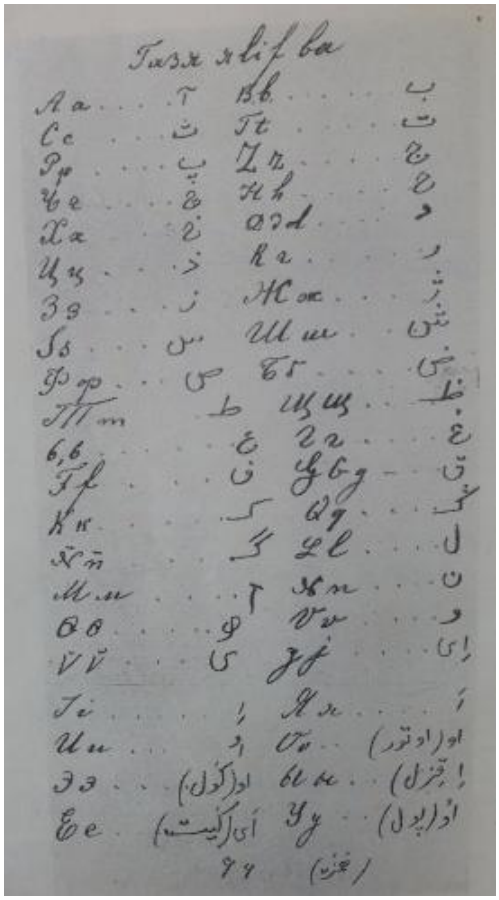


Fig. 6.2 - Akhundzade's Latin-Cyrillic Letters[462]

Both Munif Pasha and Akhundzade agreed on the technical fundamentals of a new script, and through this technical engagement with typography, Munif Pasha and Akhundzade invented an imagined Typographic Muslim, whose cognitive patterns of letter-recognition aligned with the mechanical order of the movable press. The only way to reform the Islamic world, according to the first reformers of the script, was through eliminating the main barrier to the acquisition and circulation of information. The simplicity in typesetting was reformulated as simplicity in

[461] Rahim Ra'isniya, *Iran u Osmani* (Tehran: Entesharat-e Mebna, 1385). I would like to thank Erdem Aydin for sharing this material with me.

[462] M. F. Akhundov, *Tekst pisem, napisannykh na farsidskom iazyke* (Baku: Izdatel'stvo akademii nauk azerbaidzhanskoi SSR, 1963), 53.

perception; the economy of letters in printing translated into the economy of mental labor in reading. Similar to the invention of telegraphic literacy in China, which sought to minimize labor time in accessing and producing information, the alphabetized mind of the Muslim was invented in the image of typography. The Typographic Muslim was an information seeker, an "info-Muslim," if I may. But, although many unanimously agreed that the Typographic Muslim was necessary for civilizational progress—the content of which was still undecided—the methods to reform the economy in typesetting and reading showed great variance. Many supported a reform from within, much like in China, rather than a radical break.

İbrahim Şinasi (1826-1871) took the economy of signs in printing seriously. Şinasi was the editor of the first private Turkish journal *Translator of Events* (*Tercüman-ı Ahvâl*) that started publication in 1860, and the author of what is considered to be the first modern Turkish play *The Wedding of a Poet* (*Şair Evlenmesi*), which was published in the same journal. In 1862, he started publishing *Depiction of Thoughts* (*Tasvir-i Efkâr*) in the printing press that he named after the journal (*Tasvir-i Efkâr* Press). He left for France in 1865, and when he came back to Istanbul in 1869, he invented a new typeface to optimize the economy of signs, most probably influenced by German and British orientalists who had also invented a new Arabic typeface to economize printing.[463] As shown above, more than 500 signs were needed for a proper type case in Ottoman printing due to the different combinations of multiple letters. Şinasi reduced this number to 112, bringing it much closer to the number of sorts in a Roman-lettered type case, and published two works using his experimental typeface.[464] Interestingly enough, Şinasi's typeface is extremely

[463] Onur Yazıcıgil has shared with me his insights into Şinasi's typeface. It seems probable that Şinasi took his new sorts from the British orientalist Edward William Lane's *An Arabic-English Lexicon* (London: Williams and Norgate, 1863-1893).

[464] The 112 sorts that are attributed to Şinasi are shown in a posthumous publication of Ebüzziya Tevfik (see below), replicated and published again by Ahmed Rasim. See, Ahmed Rasim, *Matbuat Tarihine Medhal: İlk Büyük Muharrirlerden Şinasi* (İstanbul: Yeni Matbaa, 1927), 47. Onur Yazıcıgil has brought to my attention the fact that

similar to the typeface used in Unicode, which makes Şinasi the first typographer to have anticipated the Arabic Unicode. There might even be direct historical connections between the two, but I leave that story to the historians of typography to decipher. For my purposes here, Şinasi's economy of signs/sorts demand attention. In Şinasi and Unicode, each letter has its own separate place in the word. Each letter is a separate sign, a separate sort. To go back to our example, *Mahmud* is written as محمود in Şinasi's typeface, as each letter—five in total—is connected to one another while preserving its own separate place on the line. How was this "economy," a creative method to reform the Ottoman script from within, received among the Ottoman printers of the day?

Ebüzziya Tevfik, another leading printer-writer of the day and a colleague of Şinasi, was also in favor of reforming the Arabic script from within, but his "economy" differed greatly from Şinasi's. Ebüzziya Tevfik sided with his friend Namik Kemal, who was the first to defend the Arabic script against Malkom Khan's proposal in 1868. Both Ebüzziya Tevfik and Namik Kemal admitted that Arabic letters caused ambiguity in meaning. But why change the letters when the letters could be perfected? they asked. The Persians, they wrote in a defensive tone, invented four extra signs to make the Arabic alphabet conform with their languages, but they did not create these signs out of the blue: the Persian letters پ چ ژ گ came from the Arabic ب ج ز ک . On the issue of *waw* و, they had differing opinions, but both were optimistic. Namik Kemal proposed

the sorts used by Şinasi were not exactly the same with the sorts that Ebüzziya Tevfik claimed Şinasi used. In *Divan-ı Şinasi*, *Muntahabat-ı Eşarım* ([Istanbul]: Tasvir-i Efkar Matbaası, 1287 [1871]), for instance, Şinasi's typeface is different from what is given in the posthumous publication. It might have been the case that Şinasi continued experimenting with the typefaces, and the posthumous publication is just one among many experiments. The exact number and shape of sorts Şinasi invented are still to be ascertained

that if *waw* signified an "o" as in *yol* (road), then the tail of the *waw* could turn upward. If it was an "ö," then a dot could be put on top of *waw*, and for an "ü," a dot below.[465]

Ebüzziya Tevfik was in agreement. In order to strengthen his position, he sided with the Crimean reformer Gasprinskii who put the blame on pedagogical methods rather than the script itself, as we will see in the next section. If pedagogy were sufficient, thought Ebüzziya, a few minor changes in the alphabet would suffice to facilitate mental input. He proposed that a *waw* with one dot on top would mean an "o," *waw* with two dots an "u," with three dots an "ö," and with the sign ◌ٗ an "ü." In Ottoman Turkish, a stand-alone *waw* could also mean "and" (*ve*), and in order to distinguish "*ve*/and" from other possible pronunciations of the sign, Ebüzziya also started printing "ve" with a *fathah* on top.[466] In other words, for both Namik Kemal and Ebüzziya Tevfik, diacritics could solve the problem of exact signification.

On the issue of the economy of signs, however, Ebüzziya did not agree with Şinasi. As Onur Yazıcıgil has shown, Ebüzziya claimed that Şinasi's typeface distorted *naskh*, and therefore, despite its semantic correctness, it was calligraphically, and similar to the Chinese simplifiers' sentiments, habitually wrong. As seen in the image below, when the word *tashih* تصحيح (revision) is written in Şinasi's typeface, it did not conform with the commonly-accepted norms of *naskh* (fig. 6.3).

[465] Namik Kemal, *Mecmua-i Ebüzziya* (1302), 1361-1362. Ebüzziya Tevfik republished Namik Kemal's critique of Malkom Khan, which was originally published in 1868, and then added his own article on the issue. For a detailed account of Ebüzziya Tevfik's life, see: Alim Gür, *Ebüzziya Tevfik: Hayatı; Dil, Edebiyat, Basın, Yayın ve Matbaacılığa Katkıları* (Ankara: T.C. Kültür Bakanlığı, 1998).

[466] Ebüzziya Tevfik, ibid., 1366.

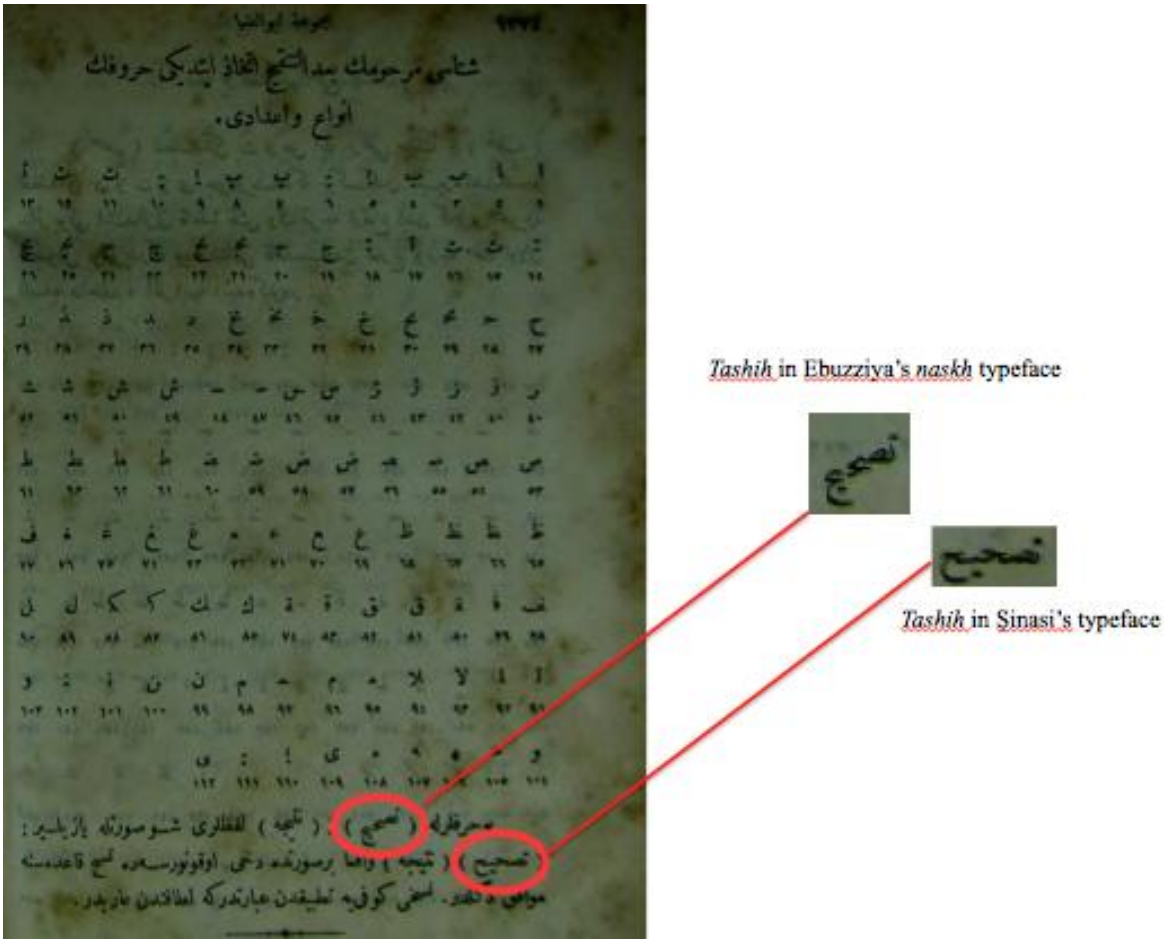


Fig. 6.3 - Ebüzziya's critique of Şinasi's typeface[467]

Moreover, according to Ebüzziya, Şinasi's typecase was a burden for the typesetter, because it was in fact inefficient. While typesetting *tashih*, a typesetter using Şinasi's sorts had to arrange five sorts side by side: *te, sad, ha, ye, ha*. The same typesetter would use only four sorts (*te, sad, ha,* and *ye+ha* as one sort) if he used Ebüzziya's typeface. In other words, in contrast to the expectation, typesetting the word *tashih* was 20% more efficient in Ebüzziya's *naskh* typeface.[468]

[467] Onur Yazıcıgil, "Continous Text Typefaces versus display typefaces in the Ottoman Empire," unpublished paper presented at Typo: International Design Talks, Berlin, 2015. Image taken from "Şinasi merhumun Ba'dettenkih ittihaz ettiği hurufun envaı ve a'dâdı" Mecmua-i Ebuzziya, no. 43 (1302).

[468] Ebüzziya Tevfik, ibid., 1369. In Şinasi's typecase, if a typesetter wanted to write 'h-y,' he had to take an 'h' and a 'y' separately from different boxes and put them on the composing stick one after another. In Ebüzziya's own

The same was true also for "Mahmud," as shown above: instead of arranging five different sorts on a composing stick, the typesetter could use only three, reducing the necessary labor by 40%. As opposed to all the figures who claimed that the extreme number of signs in a type case was uneconomic, Ebüzziya further argued that a Turkish typesetter of Arabic letters was faster than a French typesetter of Latin letters. He claimed that if a French text written in Latin and Arabic letters were given to a good French typesetter and a bad Turkish typesetter, the latter would indeed arrange the letters faster than the former, despite his lack of linguistic skills. "If anyone at any time is curious about this," wrote Ebüzziya, "and if he does not believe it, he may try it out and eliminate his suspicions through his own experience."[469]

It does not seem likely that someone would exert the effort to find a good French typesetter, a bad Turkish typesetter, a French text typed in Arabic letters, and a chronometer to measure the time difference between the two methods of arrangement. I am also not quite certain whether Ebüzziya himself put in the effort. Nevertheless, he did have a point: what was perceived as a deficiency in fact optimized the labor in typesetting while not sacrificing the calligraphic norms of *naskh*. Ebüzziya's was both an economy of typesetting and of calligraphic norms. He was indeed proud to show the 519 signs he had in his printing press, as opposed to Şinasi's 112 signs, which he could have chosen to use (fig. 6.4). Typography in Arabic letters was compatible with the demands of a modernizing information society; type cases needed no reduction; alphabet needed no destruction. At least, that was the view from Ebuzziya's print shop.

printing company, however, 'h-y' was itself just one sign, which reduced the labor of picking and arranging separate letters to one single motion.

[469] ibid., 1369. "Bunu her kim, her ne zaman merak eder ve itimad etmezse bittecrübe def-i iştimah edebilir."

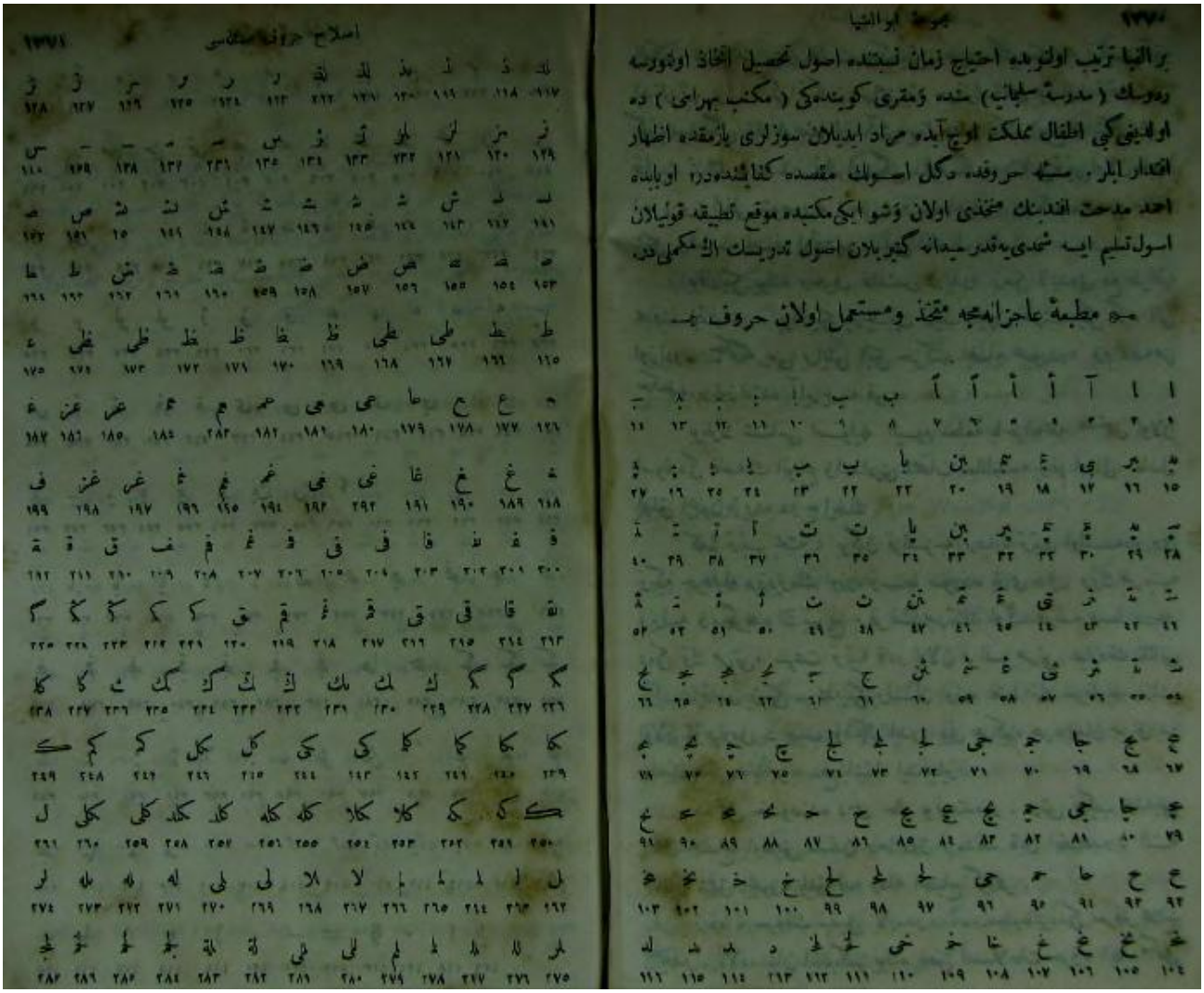


Fig. 6.4 - The first 282 signs from a total of 519 that Ebüzziya's press used[470]

The Typographic Muslim imagined by the intellectuals of the period shared the same premises, but the methods of creating it differed, for "efficiency," like in China, did not have a normative definition. Economy in the production of information (i.e., typesetting) and in the mental input of that information, itself imagined in the mirror of typography, were the reformers' primary concerns. Munif Pasha, Akhundzade, and Malkom Khan wanted an almost total

[470] Ebüzziya Tevfik, ibid., 1370-71.

destruction of the script to optimize labor in printing and reading. Şinasi, on the other hand, invented a type case that retained the Arabic script while economizing the sorts to their utmost extent, but, according to some printers of the day, destroyed the calligraphic and habitual patterns of writing and reading for the sake of economy; and as far as Ebüzziya's argument goes, it was not even economic to start with. For the time being, it seemed that Ebüzziya was victorious, at least in the Ottoman empire, since printed materials followed the *naskh* script in the following decades. In the 1870s, discussions about script reforms receded into the background, and new typefaces for different calligraphic styles became a more pressing concern. Especially under Sultan Abdulhamid II's (r. 1876-1909) regime of censorship, when even the letter foundries were consolidated under one roof to control the casting of sorts, script reforms ceased to be a serious intellectual concern.[471]

Apart from the issue of sign-economy that Ottoman and non-Ottoman reformers seriously pondered, the typographical project to print each linguistic sound separately struck the heart of imperial language politics that were going to raise concerns imperial unity in the coming decades. One reformer that immediately recognized the threat of phonetic writing was the above-mentioned Ottoman literary titan Namik Kemal, who was the first to publicly oppose Malkom Khan's script proposal. A phonetic infrastructure, even if it allegedly promised progress in knowledge production, had the potential to cause disunity in the multilingual and multi-ethnic composition of the Ottoman Empire: "I do not understand why we need to write letter by letter the nonsense (*lakirdi*) uttered by each of our people (*akvam*) as well as all the nations of the civilized world (*kaffe-i milel-i mutemeddine*). … Are we supposed to give an alphabet to the Albanians, Kurds, and Laz, and lend a spiritual weapon (*silah-i manevi*) in their hands so that

[471] Server İskit, *Türkiye'de Matbuat İdareleri ve Politikaları* (İstanbul: Tan Basımevi, 1943), 102.

they can press it against our temple?" asked a concerned Namik Kemal.[472] The distinction between "nations" (*millet*) of the outside world and the "people" (*kavim*) of the empire, such as the Albanians, Kurds, and Laz, was a significant semiotic mark that prioritized a larger Ottoman identity that could only be maintained at the expense of multi-ethnic and multilingual representation.

Namik Kemal anticipated the problems that became central to imperial politics in the early twentieth century, and ultimately culminated in the formation of separate nation states. Interestingly enough, the Albanians were indeed the first to Latinize their script in 1910 and claim a sovereign national identity. For the time being, however, Ottoman script reforms halted under the rule of Abdulhamid II. In the following decades, before the dissolution of the Ottoman Empire, phonetic infrastructures were harnessed by the Turco-Muslim vernacularists in the Russian Empire. By the end of the early twentieth century, the object of inquiry was no longer an imagined Typographic Muslim, but an imagined Typographic Nation that threatened not only the imperial regimes but even an imagined Pan-Islamist/Turkist unity.

II. The Rise of Typographic Nations: Turco-Muslim Vernacularisms in the Russian Empire

As the typographical debates were reaching a temporary end under Abdulhamid II's censorship, they found new soil in the Crimea, on the opposite shore of the Black Sea. Islamic reform movement in Central Asia has been analyzed in detail by several historians, all of whom have emphasized the inscrutable role *jadidism* played in it. Jadidism (coming from the root "jadid," which means "new" in Arabic) was a movement that started among the Crimean Tatars

[472] Tansel, "Arap Harflerinin Islahi ve Degistirilmesi," 244-245.

in the 1880s. The increasing number of printing presses and the proliferation of printed materials in Turkic, Persian, and Arabic in the second half of the nineteenth century created an unforeseen expansion of knowledge circulation and a demand for faster access to information. Jadidists were the leading figures who transformed the landscape of knowledge production in Central Asia, established schools that included modern sciences in their curricula, and introduced modern pedagogical techniques to increase the speed of learning the Arabic script.[473]

The leading jadidist figure was Ismail Gasprinskii, a Crimean Tatar, whose bi-lingual *Terjuman/Perevodchik (Translator)*, published from 1883 to 1918, was the first journal to circulate widely in the Turco-Islamic world from the Crimea to Manchuria. Gasprinskii was the first to introduce a new method (*usul-i jadid*) in teaching literacy to students. Breaking away from the memory- and repetition-based pedagogical techniques in Islamic schools, *madrasas*, Gasprinskii divided each word into its letter-components, and taught the students how to read and compose in a way that was significantly faster than what was allowed by the slow memorization of classical texts. He promoted his new method through establishing the first New Method School in 1884 in Bahcesarai, the Crimea, and the movement quickly spread to other urban areas in Central Asia, all the way into Xinjiang, China.[474]

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[473] Cafer Seydahmet, *Gaspıralı İsmail Bey (Dilde, Fikirde, İşte Birlik)* (İstanbul: Matbaacılık ve Neşriyat Türk Anonim Şirketi, 1934); C. H. Encausse, *Islam and the Russian Empire: Reform and Revolution in Central Asia*, trans. Quintin Hoare (London: I. B. Tauris, 2009 [1966]); Edward Lazzerini, "Ismail Gasprinskii and Muslim Modernism in Russia," PhD dissertation, University of Washington, 1973; Alan W. Fisher, "Ismail Gaspirali, Model Leader for Asia," in *Tatars of the Crimea: Their Struggle for Survival*, ed. Edward Allworth (Durham: Duke University Press, 1988), 11-26; Edward J. Lazzerini, "Ismail Bey Gasprinskii (Gaspirali), the Discourse of Modernism, and the Russians," in *Tatars of the Crimea*, 149-169; Adeeb Khalid, *The Politics of Muslim Cultural Reform: Jadidism in Central Asia* (Berkeley: University of California Press, 1998); B. Ingeborg, "Jadidism in Central Asia within Reformism and Modernism in the Muslim World," *Die Welt des Islams*, New Series, vol. 41, no. 1 (Mar. 2001), 72-88; Oliver Roy, *The New Central Asia: The Creation of Nations* (New York: New York University Press, 2007), 35-49.

[474] On jadidism in Xinjiang, see James Millward, *Eurasian Crossroads: A History of Xinjiang* (New York: Columbia University Press, 2007), 124-234; David Brophy, "Tending to Unite? The Origins of Uyghur Nationalism," PhD Dissertation, Harvard University, 2011, 178-207.

The significance of the letterpress in Gasprinskii's journalistic achievement as well as pedagogical technique demands close scrutiny, for it mirrored the Ottoman debates on the interface between typography and reading efficiency. Worthy of note is the typeface that Gasprinskii used, both in his educational materials and *Terjuman*, which was very similar to Şinasi's. As mentioned, Şinasi's typeface did not become the dominant form in Ottoman print, but it did succeed in reaching across the shore and become the material basis of the most widely-circulated journal in the Muslim world, while giving rise to Gasprinskii's "new method" in teaching literacy. Gasprinskii printed the first book describing the new pedagogical technique of breaking down the words into syllables and letters in 1884, only one year after the publication of *Terjuman.* As seen in the image below, he used the movable type and the Şinasi-inspired typeface as the model for a new form of literacy, where reading and writing followed the same pattern of typesetting (fig. 6.5).

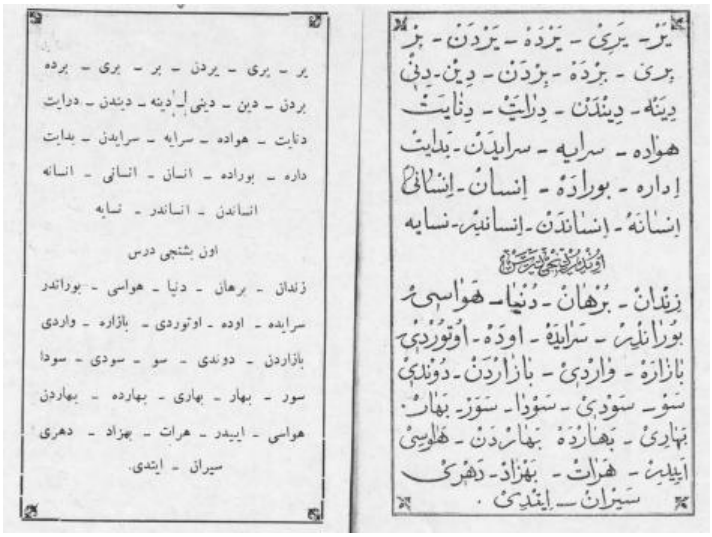

Fig. 6.5 - Gasprinskii's typeface and pedagogy[475]

[475] Ismail Gasprinskii, *Hoca-i Sibyan* (Bahçesaray: 1884). I would like to thank Yavuz Akpınar for sharing this image with me.

Gasprinskii was the first Pan-Turkist/Islamist intellectual to try to unify all the Turkic-speaking Muslim lands through a literary common. From the start, he was aware of the differences in Turkic languages. Like Chinese, there were a myriad different Turkic speeches across Eurasia, some of which were mutually unintelligible. For instance, the Turkish spoken in Istanbul was similar to Azeri in certain respects, but significantly different from Kyrgyz. Yet, Gasprinskii believed that a simplified literary language—by which he meant a language that was closer to Ottoman Turkish than to Kyrgyz—that was comprehensible to all the Turkic people was necessary and plausible. His vision for vernacularization was limited in scope, in that he never advocated writing in colloquial tongues, but did advocate the elimination of Persian and Arabic words, and to compose in a simpler structure with shorter sentences. As some scholars have pointed out, Gasprinskii's reformism was also a reaction to the Russian state's policies of Russification under the infamous orientalist and missionary Nikolai Il'minskii (1822-1891), who was working on the Cyrillization of the Muslim alphabet precisely when Gasprinskii started his movement.[476] Yet, it would be a mistake to claim that jadidists were anti-Russian, for until the waning years of the Russian Empire, some imagined a coexistence rather than a separation. Until the reform movements in 1905, after which the number of Muslim publications proliferated in the Russian Empire, *Terjuman* was the leading publication that spread Gasprinskii's ideas of

[476] Russian imperial armies conquered Turkestan in 1867, and a policy of Russification ensued from then on. Nikolai Il'minskii, an Orthodox missionary who established the first orientalist institutes in Kazan, was a strong supporter of Cyrillizing the Arabic alphabets. For a selection of letters on the issue, see Nikoai Il'minskii, *Iz" perepiski po voprosy o primenenii russkago alfavita k" inorodcheskim" iazykam"* (Kazan: Tipografiia imperatorskago universiteta, 1883). Also see, Robert P. Geraci. *Window on the East: National and Imperial Identities in Late Tsarist Russia* (Ithaca: Cornell University Press, 2001). On nineteenth-century Russian imperialism in Central Asia, see, Daniel R. Brower, *Turkestan and the Fate of the Russian Empire* (London: RoutledgeCurzon, 2003); Daniel R. Brower and Edward J. Lazzerini, *Russia's Orient : Imperial Borderlands and Peoples, 1700-1917* (Bloomington: Indiana University Press, 1997); Austin Jersild, *Orientalism and Empire : North Caucasus Mountain Peoples and the Georgian Frontier, 1845-1917* (Montreal: McGill-Queen's University Press, 2002).

"union in language, thought, and work." By the time Gasprinkii died in 1914 in the Crimea, he was already the foremost model for the young Pan-Turkists of the period, Yusuf Akcura, Ziya Gokalp, Zeki Velidi (Togan), and others.

Gasprinskii's jadidism was indistinguishable from his language and script politics, but his politics were not the only form of reformism in Central Asia. Gasprinskii was in favor of new methods in learning, desired an Islamic reform from within, similar to the Chinese creative destroyers, and never proposed anything as radical as completely changing the script. He was in favor of reducing the use of non-Turkic words, but did not give up on the Turco-Persian-Arabic alphabet. He was a late-nineteenth century romantic, akin to his contemporaries in Germany and Russia, seeking a spiritual renovation through education and the creation of a common past with a common language and a common script. The language that Gasprinskii's script represented, however, was much closer to Ottoman Turkish than to other vernacular speeches in Transcaucasia and Central Asia, and in his insistence, he may remind us of the supporters of Beijing Mandarin in China. The synchronic unfolding of events in the Russo-Ottoman world and China thus followed a similar course, albeit with different consequences. Around the time that Chinese script reformers allied with the alphabet to represent vernacular tongues, Turkic intellectuals also embarked on a similar project, which ran diametrically opposed to Gasprinskii's ideal to invent a common literary medium.

A key figure, hitherto unexplored, in the transition from imagining a common Typographic Muslim to vernacular Typographic Nations was Mokhammad Sultanovich Shakhtakhtinskii (Mehemmedaga Shahtahtli) (1846-1931). Born in Nakhchivan, Shakhtakhtinskii studied in Tblisi, Petersburg, Leipzig, and Paris. Apart from engaging in Russian journalism, he was also a member in the *Association phonétique internationale*, formed in Paris in 1886 by the French

linguist Paul Passy.[477] Shakhtakhtinskii published his first attempt at a new script in 1879 in Tblisi, one year after Akhundzade's death in the same city. It was titled *The Reformed Muslim Alphabet (Usovershenstvovannaia musul'manskaia azbuka)*. This first attempt, which he changed in the following decades, took to heart the need to invent signs for vowels, eliminate dots, and give each letter only one sign, all of which were proposed earlier by Akhundzade. "The Arabs gave the Muslim world a '*bet*,'" noted Shakhtakhtinskii sarcastically to emphasize the lack of vowels in the Arabic script, "I am presenting it an *alpha*bet."[478] His vowels were in principle derivations of *aleph* ا and *waw* و. He added new strokes to these two letters to make exact equivalents of nine vowels. As for the new consonants, they were very similar to the existing Arabic letters, but extra strokes contained the dots within the limits of one letter to ascertain exact signification, just like in metal types. He then gave each letter only one sign to make sure that the alphabet could be written using separate letters, eliminating the typographical need to have four different signs for each letter (fig. 6.6). At last, in a radical move, he wrote part of the Quran using his new alphabet, defying the *ulama*'s call for writing the Quran only with the Arabic letters.

[477] Mokhammed Sultanovich Shakhtakhtinskii, *Poiasnitel'naia zapiska o foneticheskoi vostochnoi azbuk* (Tiflis: Elektropech. Gruzinskago Izdatel'skago t-va, 1902), 4. Shakhtakhtinskii likened himself to Iakov Grot, who was among the leaders in Russia standardizing Russian orthography in mid-nineteenth-century Russia. For orthographical reform in Russian, see, Michael G. Smith, ibid., 15-34.

[478] Mamed Shakhtakhtinskii, *Usovershenstvovannaia musul'manskaia azbuka / Tekmillenmis musulman alifbasi.* (Tiflis: Pech. v litogr. Tomsona, 1879), 21. Emphasis mine. Арабы дали Мусульманскому міру "буку," я представляю азбуку.

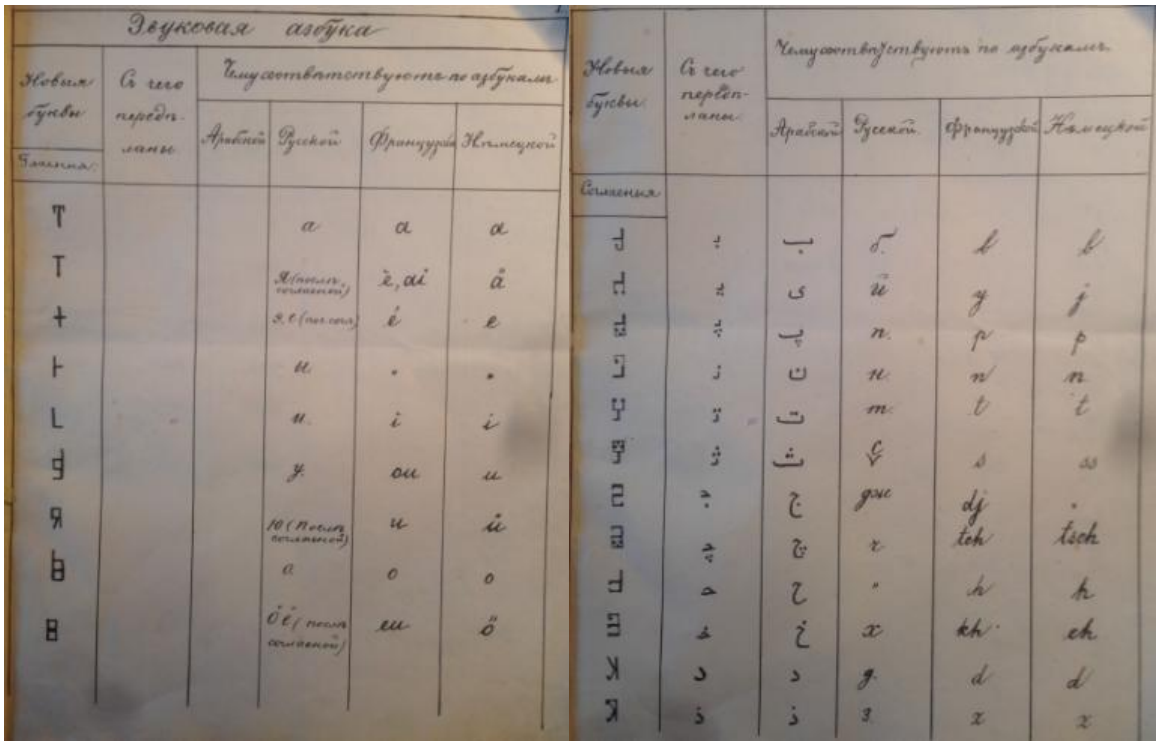

Fig. 6.6 - Shakhtakhtinskii's Alphabet in comparison to
Arabic, Russian, French, and German letters and pronunciations[479]

The alphabet that he invented, wrote Shakhtakhtinskii, was not a "national" but an "eastern" one for all the speakers of Turko-Tatar languages, Persian, and Arabic.[480] He anticipated—rather, very optimistically hoped—that it would take a long time for the Muslims to get used to his alphabet, so he also invented a new *naskh* script involving the vowels that were hitherto unsignified. For the uninitiated, his "reformed *naskh*" (*usovershenstvovennyi naskh'*) would be the gateway into the new alphabet.[481] Contrary to his expectations, Shakhtakhtinskii's alphabet did not achieve the recognition he hoped for. In the following years, he stepped away from his initial desire to create an "eastern alphabet." In the 1890s, Shakhtakhtinskii had already begun

[479] Shakhtakhtinskii, *usovershenstvovannaia musul'manskaia azbuka*, 1 and 3.

[480] ibid., 22.

[481] ibid., 29-30.

imagining an Azeri identity with a colloquial Azeri language, different from other Turkic languages. Between 1891 and 1893, while he was working as a temporary editor for the Russian journal *Kaspii* published by Azerbaijani Turks in Baku, he started to define "Azerbaijan" and "Azerbaijanian" as a national category, and attempted to publish a journal in Azeri Turkish.[482] At last, between 1903 and 1905, he published *The Russian East (Sharq-i Rus)*.

The language of publication was not clear in *The Russian East*. On the one hand, Shakhtakhtinskii's journal was the first Turkic journal to be published after *Terjuman*, and he was keen to promote it in the whole Turkic world. On the other hand, in the first issue of the journal, he was not sure what a "common literary Turkic language" meant, and wrote that there was not a dominant speech of Turkic languages that had succeeded in becoming the common literary norm, and therefore he allowed all sorts of Turkic tongues to be published in his journal, allowing the representation of different vernaculars under one roof, and hoping that a common language would emerge out of linguistic diversity. Yet, in practice, he did not succeed in conciliating vernacular differences—in 1904, he refused to publish an article he received from a Kyrgyz author with the explanation that it did not conform to the literary language of the Turco-Tatars.[483] Still, Shakhtakhtinskii's native language (*rodnoi iazyk*) was not Gasprinskii's literary language akin to the Turkish spoken in Istanbul and the Crimea, but Azeri Turkish, which was comprehensible to Turco-Tatars in the Crimea and Volga-Ural region, but still dangerously vernacular and potentially detrimental to the Pan-Islamist/Turkist cause.[484] A common Arabic

[482] Selçuk Türkyılmaz, "Şark-i Rus Gazetesi'nin İzahlı Makaleler Bibliyografyası," *Türk Dili ve Edebiyatı Araştırmaları Dergisi,* no. 18 (June 2010), 125.

[483] Türkyılmaz, ibid., 126.

[484] On a brief discussion of the debate initiated by *The Russian East*, see: Tadeusz Swietochowski, *Russian Azerbaijan, 1905-1920: The Shaping of National Identity in a Muslim Community* (London: Cambridge University Press, 2004 [1985]), 61.

alphabet could be used as the script for a common literary language, but if a phonetic alphabet were to succeed, vernacularization was almost inevitable. And that was precisely what Shakhtakhtinskii wished for. When he introduced his newer alphabet right before the publication of *The Russian East*, he named it "The Little Azerbaijani Alphabet."[485] The letters of this national alphabet were quite different from his proposal in 1879. They were not as perpendicular and clunky, but embodied the same principles of eliminating the dots, assigning only one sign to each letter, and inventing new signs for vowels, all for a vernacular Azerbaijani speech.

Fig. 6.7 - Shakhtakhtinskii's Alphabet in 1902 (in the bottom are the ten signs for numbers)[486]

[485] Shakhtakhtinskii, *Poiasnitel'naia zapiska,* 16; and Mokhammad S. Shakhtakhtinskii, *Malen'kaia Azerbaidzhanskaia Azbuka* (Tiflis: lit. Iakshata, aren. Bykhov, tsenz.,1902).

[486] Shakhtakhtinskii published this alphabet under *Malen'kaia Azerbaidzhanskaia Azbuka*. I would like to thank Yavuz Akpinar for sharing this image with me.

By the time his alphabet made its debut in *The Russian East* in 1904, he had changed the signs for vowels yet again, this time assigning an Arabic number to each vowel — nine numbers for nine vowels:١ - ä, ٢ - a, ٣ - э (e), ٤ - ы, ٥ - и, ٦ - o, ٧ - ö, ٨ - y, ٩ - ÿ. According to these signs, *üzüm* (grape) would be written as م٩ز٩ instead of اوزوم, *uzun* (long) as ن٨ز٨ instead of اوزون, *ana* (mother) as ن٢ instead of انا, and so on.[487] He also changed the signs he invented for numbers, replacing them with letters, perhpas not suprisingly. From 0 to 9, the numbers were going to be represented by the following letter-signs: ا ب ج د ه و ز ح ط ي. In other words, the new alphabet required the re-learning of numbers as letters, and letters as numbers. It looked similar to writing my name as 8l8g K8z86gl8 (Ulug Kuzuoglu), or writing today's date as bh.0a.b0av (28.01.2016). In other words, the future of the Azerbaijanian alphabet looked … complicated.

The person who least liked the alphabet was without a doubt Gasprinskii, for it ran against his Pan-Islamist vision. Shahtakhtinskii was indeed the first to draw a distinction between religious and secular education, and he did so through his alphabet. Arabic script, Shakhtakhtinskii proposed, could still be used to study Islamic works, but his alphabet offered a new medium to study modern sciences and literature in vernacular tongues. The materiality of signs, in other words, sharply delineated what constituted religious and secular, traditional and modern, Islam and civilization. This arbitrary separation posed a contradiction for Gasprinskii and his followers in *Terjuman*, who devoted their lives to argue for Islam *as* civilization. "Revered Mehemmed Aga's alphabet issue has astonished us," wrote Gasprinskii in *Terjuman*, and characterized Shakhtakhtinskii's project as "childish" and "empty." "The children of Islam are learning the Arabic alphabet to read and write in Arabic, Turkich, Persian, Urdu, and

[487] *Shark-i Rus*, no. 1, 1904.

Javanese tongues. The alphabet is one. The shape of letters is one. Mehemmed Aga is proposing the Arabic alphabet for the Koran, and his own alphabet for the rest. [Now we have] two alphabets. Isn't it better and more useful to simplify educational methods rather than inventing an alphabet that is strenuous and difficult to promote and make people accept?" If there is a need for a new alphabet to simplify education and civilizational progress for the Caucasian Muslims," noted Gasprinskii quite sarcastically, "the Russian alphabet is ready for use." Just like the earlier proposals for script reform, Gasprinkii believed that Shakhtakhtinskii's was also going to vanish.[488]

Shakhtakhtinskii, however, was not simply an outlier, however, but the harbinger of a new age. The following months witnessed one of the most heated public debates about script in Transcaucasia, published on the pages of *Terjuman*, *Russian East,* and *Kaspii*, the Russian-language journal published in Baku by Turkic intellectuals that Shakhtakhtinskii used to work with. In the following issue of *Terjuman*, Gasprinskii attacked Shakhtakhtinskii for his "inappropriate (*namünasib*)" comments on the millionaire Zeynelabidin Taghiev. Taghiev was an oil titan and a leading industrialist in Transcaucasia, who was pro-Ottoman in his political leaning. Known as a philanthropist who helped build schools and promote education among local Muslim and non-Muslim communities, Taghiev was arguably one of the most powerful figures in Transcaucasia, whose industrial empire came to an end only with the Bolsheviks.[489] Shakhtakhtinskii publicly humiliated Taghiev in his journal by claiming that he pulled back his financial support from one of the local schools. Outraged by Shakhtakhtinskii's move, the

[488] "Tiflis'te Yeni Gazete," *Terjuman*, no. 15 (April 19, 1903), 58-59, quoted in Yavuz Akpınar, "İsmail Gaspıralı ve Mehmet Ağa Şahtahtlı'nın Alfabe Konusundaki Tartışmaları," Unpublished paper presented in VI. Uluslararası Türk Dili Kurultayı, 20-25 Ekim, 2008, 8.

[489] Peri Mirzoeva, "Bakinskaia neft' I neftianye magnaty Baku," *Vyshka*, no. 32 (2002).

leading politicians of Tblisi wrote letters to Gasprinskii to help rectify Taghiev's name. Gasprinskii gladly complied, writing in Terjuman that "a newspaper is the place for manners, conscience, and justice. … Hajji Zeynelabidin Taghiev donates charity and gifts in the hundreds of thousands; he gives it to *mekteb* and *madrasas*; to Russian schools and gymnasiums; and he always helps train three to five people in the universities. He extends his hand everywhere, without making a distinction between Muslims, Russians, or Armenians."[490]

It quickly turned out that Shakhtkhtinskii had indeed asked Taghiev for patronage to support the publication of *Russian East*, but Taghiev, whose politics did not then align with Shakhtakhtinskii's vernacularism, refused. Instead, Taghiev donated a thousand rubles to *Terjuman*, which explains not only Gasprinskii's praise for Taghiev but also the patronage networks during this stage of print politics in Transcaucasia.[491] Still, at the center of this dispute lay the politics of script, for both *Terjuman* and Baku-based *Kaspii* used this instance to disparage Shakhtakhtinskii and his alphabet. "You're ornamenting *Russian East* by turning Taghiev's one thousand rubles [to *Terjuman*] into an act of bribery," noted one author in *Terjuman*, "a lot of men, not only Taghiev, are giving us these kinds of bribes. It is clear what you are tyring to say: you are recalling how the drunken Western journalists sell out their honor (*namus*) and nation (*millet*). Just because you stayed for too long in the West, it doesn't follow that you should forget about our people's customs."[492] Defamation quickly turned into an attack on Shakhtakhtinskii's vernacularism: "We wanted to have a journal in our own tongue. We were

[490] *Terjuman*, no. 16 (April 26, 1903), 66.

[491] *Terjuman*, no. 19 (May 18, 1903), 84-85.

[492] ibid.

disillusioned by the hopes that [such a journal] would serve education and civilization. Look, *Russian East* started coming out. See how it serves the people."[493]

Of immediate concern for the Pan-Islamists was the secularism that purportedly accompanied Shakhtakhtinskii's alphabet. Even though Shakhtakhtinskii tried to posit his alphabet within a *long durée* history of Arabic script reforms, claiming that the Arabic script indeed changed over time, *Terjuman* succinctly propagated against the anti-Muslim quality of the new script: "What does Mehemmedaga want? He wants to change our script… And what else does he want? He wants us to forget our religion and verses…"[494] Gasprinskii was certain that all the Muslims from Iran to Siberia would unanimously reject this kind of a change. Shakhtakhtinskii, or as some of the authors in *Terjuman* mockingly called him, "Monsieur Memed," had spent too much time in the West, and forgot about the history of Islam.[495]

Not everyone was of the same opinion, however. In an unexpected article published in *Russian East*, Abdurresid Ibrahim, one of the leading Pan-Islamists of the day whose transnational life from Istanbul to Tokyo has been the subject of previous scholarship, reacted against *Terjuman*'s conservatism.[496] Portraying himself and *Russian East* as a "caravan," Abdurresid Ibrahim likened *Terjuman* as a "brigand (*razboinik/yol basici*)." Clearly, for Ibrahim, script reform and vernacularism did not necessarily obviate the politics of Pan-Islamism, but offered a different path that did not necessarily rely on literary unity. Yet, Gasprinskii was still of the opposite opinion, for Shakhtakhtinskii's Western-influenced literary vision was a threat to

[493] Published in *Kaspii*, quoted in *Terjuman*, no. 21 (June 2, 1903), 86.

[494] Ahmed Efendiev's letter that was subsequently published in *Terjuman*. See, *Terjuman*, no. 23 (June 16, 1903).

[495] *Terjuman*, no. 26 (July 7, 1903).

[496] Selçuk Esenbel, "Japan's Global Claim to Asia and the World of Islam: Transnational Nationalism and World Power, 1900-1945," *The American Historical Review* 109, no. 4 (2004), 140-170.

Turco-Islamic unity under a Russian Empire. "Our time is not the time of Shaki, Shirvan or Karabakh Khanates," wrote Gasprinskii, referring to the semi-independent Turkic khanates in the late-seventeenth and early-eighteenth centuries, "it is the time of Russia."

Gasprinskii's words made clear the alliance with the Russian Empire that *Terjuman* sought after. Shakhtakhtinskii's promotion of Azeri language and identity was especially troublesome for this alliance, since the Azeri-speakers occupied the majority of the population in Transcaucasia.[497] The Shaikhulislam of Transcaucasia Abdussalam also sided with *Terjuman*'s endeavors. In a letter to *Terjuman*, he noted that "private initiatives will not be able to spread and achieve synthesis. … For the new script to have general popularity and use everywhere, it must receive common acceptance and endorsement from Muslim governments, and be officially introduced to all places at once."[498]

The debate between *Terjuman* and *Russian East* did not come an end, as the latter continued publication until 1905, and printed young Azeri intellectuals' literary pieces as well, some of whom, such as Firidun Kocharli, played an important role in the Azeri script reform in the following decades. When *Russian East* ceased publication in 1905, Shakhtakhtinskii's alphabet lost its novelty as well, but Gasprinskii was mistaken in his belief that script reform would not be able to take place in the Islamic world. The debate between Gasprinskii and Shakhtakhtinskii was in fact a breaking point that anticipated a bigger clash between divergent grammatologies and the politics embedded in them.

[497] Firuz Kazemzadeh, *The Struggle for Transcaucasia, 1917-1921* (New York: Philosophical Library, 1951), 15-16.

[498] *Terjuman*, no. 36 (September 15, 1903), 158-159.

III. From Separate Letters to Latinization in the Russo-Ottoman World

After 1905, the debates about script, vernacularization, and secular/Islamic knowledge were no longer confined to three journals, as dozens more commenced publication right after the Russian reforms following the defeat in the Russo-Japanese War (1904-1905).[499] Just a few years later, when the Young Turks brought down Sultan Abdulhamid II's authoritarian regime in 1908 and initiated the Second Constitutional Era, print business developed at an unprecedented speed. All of a sudden, hundreds of journals and newspapers started publication, and this proliferation ignited a debated about the alphabet that cut across the Ottoman empire, the Crimea, and Transcaucasia.

Within a growing technologized environment and desire for mass literacy, there were various voices within the movement in the Ottoman Empire, who asserted themselves once more as the center of script reforms. On one side of the debate were the reformists who pursued the path of separate letters, first proposed and put into practice by Munif Pasha, Akhundzade, and Malkom Khan. Eminent Ottoman intellectuals Recaizade Mahmut Ekrem, Milaslı İsmail Hakkı, Necmeddin Arif, and Ali Nusret established the Committee of Alphabet Reform (*ıslah-ı huruf cemiyeti*) in 1911. The proposals that came out of this committee dovetailed with those of Malkom Khan in that the shape of the letters were similar to Arabic letters, dots were preserved, the direction of writing was from right to left, and the letters were written separately with one sign for each letter. Milasli Ismail Hakki (1870-1939) was the leading figure who promoted the "New Writing" (*yeni yazı*) through books, newspapers, and conferences (fig. 6.8).[500]

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[499] A. Bennigsen, "'Molla Nasreddin' et la presse satirique musulmane de Russie avant 1917," *Cahiers du Monde Russe et Soviétique,* vol. 3, no. 3 (1962), 505-520.

[500] The main journal in this endeavor was the short-lived *Yeni Yazi*, published in 1914. Other books that were published to introduce and spread the use of separate letters were: Milaslı İsmail Hakkı, *Ta'amim-i Maarif ve Islah-i Huruf* (İstanbul: A. Asaduryan Matbaasi, 1324 [1908]); Islah-i Huruf Cemiyeti, *Yeni Harflerle Elifba* (Istanbul: Matbaa-i Hayriye ve Şürekası, 1333 [1917]); Milasli Ismail Hakki, *Yeni Yazı ve Elifbası* (Istanbul: Hurriyet

These separate letters were embraced to a greater extent by Enver Pasha (1881-1922), one of the most controversial military figures in the late Ottoman Empire, less for mass literacy and more for increasing efficiency in military telegraphic communication. In 1914, he ordered the use of separate letters in all sorts of military communications, and even *The Military Yearbook of 1914-1915 (Ordu Salnamesi)* was published using separate letters (fig. 6.9).[501] Enver Pasha's writing was not without reason. The Arabic script was adopted to the Morse code in the 1870s, as mentioned earlier, but in transmitting messages, a telegraph clerk had to break down each handwritten word into its letters first. And on the receiving side, another telegraph clerk had to combine separate letters and write them out in hand, due to the absence of typewriters. Enver Pasha's script thus had the potential to mechanize writing and language in order to increase communicative efficiency in the Great War. But since it required re-training the officers in a new script, it proved to be more confusing than efficient, and was abandoned almost immediately after its invention.

Matbaasi (?), 1327 [1910]). The latter two books were written entirely in separate letters. Also see, M. Şakir Ülkütaşır, *Cumhuriyetin 50. yılında Atatürk ve Harf Devrimi* (Ankara: Türk Dil Kurumu Yayınları, 1973), 22-34.

[501] Rekin Ertem, ibid., 137-140. This script was also known as "The Army Alphabet (*Ordu Elifbası*)," "New Script (*Hatt-ı Cedid*)", and "Enverpaşa Writing (*Enverpaşa Yazısı*)." M. Ulkutasir, ibid., 26.

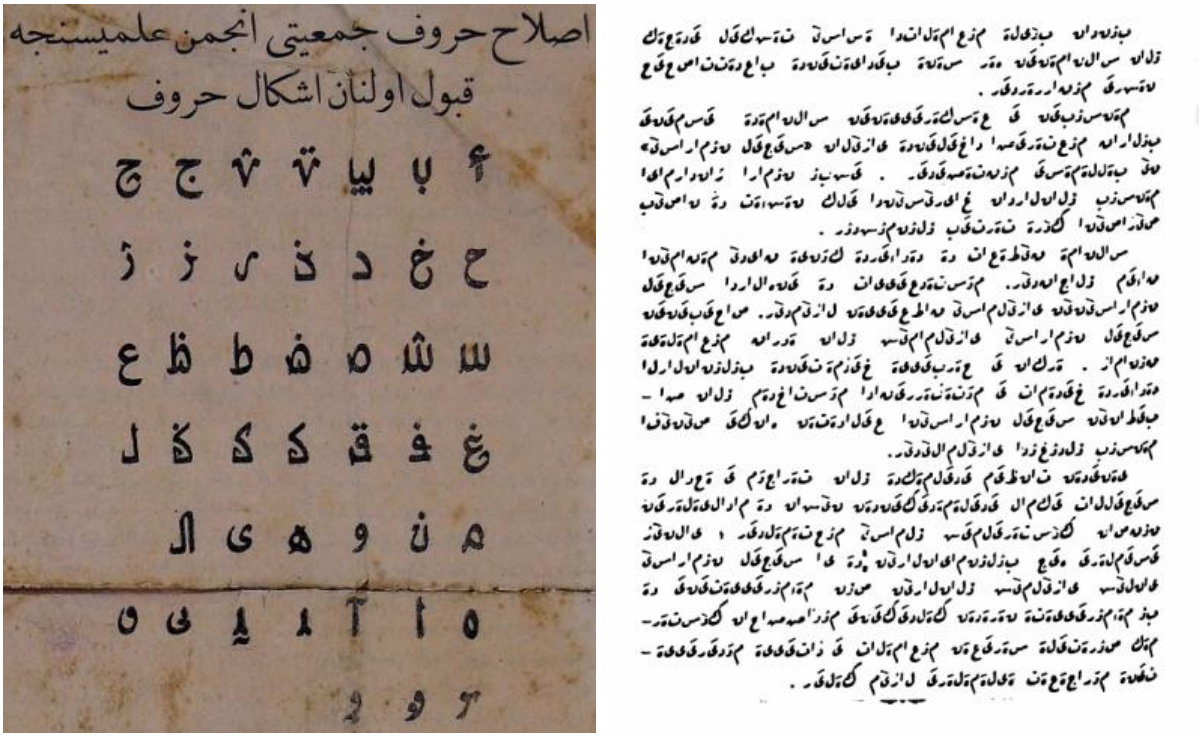

Fig. 6.8 (on the left) - The shapes of letters as accepted by the Scientific Council of the Committee of Alphabet Reform (1914)[502]; and Fig. 6.9 (on the right) - "Introduction" to *The Military Yearbook of 1914-1915* (Ahmed Ihsan ve Surekasi, Matbaa-i Osmani Sirketi, 1330)

On the other side of the coin were prominent Turkish intellectuals, such as Huseyin Cahid, Celal Nuri, and Abdullah Cevdet, who were ardent supporters of the Latin Alphabet, which they claimed was not only the medium of intellectual production in Europe, but also more practical than inventing new signs. Although the discussions about adopting the Latin alphabet were present in the 1860s, this was the first time that major intellectual figures began to openly support it. One of the instigators of this debate was the Albanians, who adopted the Latin Alphabet in 1909-10, and claimed their own national identity. Secondly, the issue of letters was now highly nationalized, as the Ottoman Turkish intellectuals claimed that the Arabic alphabet

[502] "Islah-ı huruf cemiyeti encümen-i ilmiyesince kabul olunan eşkal-i huruf," *Yeni Yazi,* no. 1, 1330 [1914]

had always been for the Arabs, and was never suitable for the phonetics of Turkic languages.[503] Didn't ز , ذ and ظ all give the same "z" sound; and س , ث and ص "s" in Turkish?[504] Arabic letters, the Turkish Latinists believed, caused an unnecessary inflation in the writing of Turkish, which was now rapidly going through a period of vernacularization.[505] Latin Alphabet, they forcefully asserted, was the only solution. The Arabic letters, in the words of Celal Nuri, were "abysmal (*berbat*)," "insufficient (*nâkâfi)*," and "unnatural (*gayri tabii*)."[506] (Quite ironically, all the words Celal Nuri used to describe the inefficiency of Arabic letters for Turkish language were of Arabic origin…)

Meanwhile, in Transcaucasia, the dispute that had started with Gasprinskii and Shakhtakhtanskii was never really settled. After the Russian reforms, the increasing number of Transcaucasian journals published in various languages put more pressure on the issue of script and vernacularization. On top of the ongoing debates, some intellectuals voiced their discontent with the linguistic policies of the Russian empire. The leading satirical journal in Tbilisi, *Molla Nasreddin*, periodically published scatching critiques of the educational policies that prioritized instruction in the Russian language at the expense of native tongues. Written in colloquial Azeri, *Molla Nasreddin* considered the overwhelming presence of Russian language as an encroachment on the bodies of the Azeris themselves. In one drawing, *Molla Nasreddin* parodied the use of Russian language in education as a surgical operation on native Azeris. The right-wing

[503] Rekin Ertem, ibid., 142.

[504] Avram Galanti, *Arabi Harfleri Terakkimize Mani' Degildir* (Istanbul: Bedir Yayınevi, 1996 [1927]), 13. Galanti was in fact against the Latinization of Turkish, but he did agree with the Latinists in that some of the signs were unnecessary in Turkish.

[505] Agah Sırrı Levend, *Türk Dilinde Gelişme ve Sadeleşme Safhaları* (Ankara: Türk Tarih Kurumu Basımevi, 1949), 309-342.

[506] Celal Nuri, *Mukadderat-i Tarihiye* (1913), quoted in Osman Ergin, *İstanbul Mektepleri ve İlim, Terbiye ve San'at Müesseseleri Dolayısiyle Turkiye Maarif Tarihi,* vol. 5 (İstanbul: Eser Matbaası, 1977), 1752.

monarchist Vladimir Pureshkevic and the nationalist head of the Russians in Caucasia F. F. Timoshkin were portrayed as cutting off the tongue off an Azeri man, and sewing a new Russian one instead. (Fig. 6.10) In another cartoon, an Azeri Turk twisting in pain was stuffed with Russian, Persian, and Arabic tongues, while he exclaimed: "Dear brothers, I already have a tongue so why are you trying to put others into my mouth!" (Fig. 6.11)

Fig. 6.10 - Sewing Russian Tongues in Schools

Fig. 6.11 - An Azeri Turk stuffed with tongues[507]

Azeri speech, according to the nationalist intelligentsia, was under attack not only by Russian, Persian, and Arabic, but even Ottoman Turkish. In Transcaucasia, there were intellectuals known as Azerbaijani Ottomanizers in the 1910s, who supported the use of a reformed Ottoman Turkish for Azeri publications. But many, like Firidun Kocharli, a Latinist

[507] Slavs and Tatars (eds.), *Molla Nasreddin: the magazine that would've could've should've* (Zurich: JRP Ringier, 2011), 194-195.

himself who had published in *Russian East*, called the Ottomanization of Azerbaijan a "national treason," and even likened it to Il'minskii's project of Russification.[508] "Ottomanizers" notwithstanding, the impact of the ongoing Latinization movement in the Ottoman Empire had a much larger impact on the Azeris. For them, like the Turkish nationalists across the border, a new script was the concrete medium to signify a grammatological and linguistic sovereignty.

The first Azeri script in Latin Alphabet came with the establishment of the short-lived Democratic Azerbaijani Republic (1918-1921), formed immediately after the Bolshevik Revolution which brought an end to Russian rule in Transcaucasia, and forced many of the reformers to move from Tbilisi to Baku, which became the strongest frontier in Latinization. Abdullah Bey Efendizade published *The Last Turkic Alphabet* in Baku in 1919 in Latin Alphabet as a potential candidate for a sovereign grammatology.[509] Only a year later, when the Republic surrendered to the Bolshevik forces in what was in effect an invasion, the dispute between "Arabists" and "Latinists" continued in Baku, and was settled by the intervention of Nariman Narimanov (1870-1925), the ex-president of the Azerbaijani Council of People's Commissars, who invited both sides to an open debate in December 1921.

The dispute was not settled once and for all, but the Latinists were able to form the "Committee of the New Turkic Alphabet" (*komitet novogo tiurkskogo alfavita*) with names such as Agamalioglu, Shakhtakhtinskii, Efendizade, Ferhad Agazade, and others, some of whom were later going to be present in the First All-Union Turcology Congress as well.[510] The Committee

[508] Swietochowski, ibid., 62-63.

[509] Agazade and Karakashly, ibid., 56.

[510] F. Agazade and K. Karakashly, *Ocherk po istorii razvitiia dvizheniia novogo alfavita i ego dostizheniia*, 57-64. The committee was formed by S. Agamalioglu, Kh. Melik-Aslanov, Mamed-Emin, Efendizade, Shakhtakhtinskii, A. Emirov, A. Pepinov, A. Tagizade, Seidov, Israfilov, and Agazade. The earlier projects of Tagiev (Tagizade) and Seidov were used the most to come up with the New Turkic Alphabet.

under Samed Aga Agamalioglu introduced the "New Turkic Alphabet" in 1922, and started publishing the monthly journal *Jəni Jol* (*The New Way*) that promoted it. Agamalioglu then took a quick trip to Moscow to receive the blessings of Lenin, who, according to Agamalioglu's account, called Latinization the "revolution in the East."[511] On October 20, 1923, the New Turkic Alphabet was declared to be on par with the Arabic Alphabet in Azerbaijan, and it was exported to Georgia, Armenia, Turkmenistan, and the Crimea. On June 27, 1924, it was finally recognized as the official alphabet of the Soviet Socialist Republic of Azerbaijan (fig. 6.12).[512]

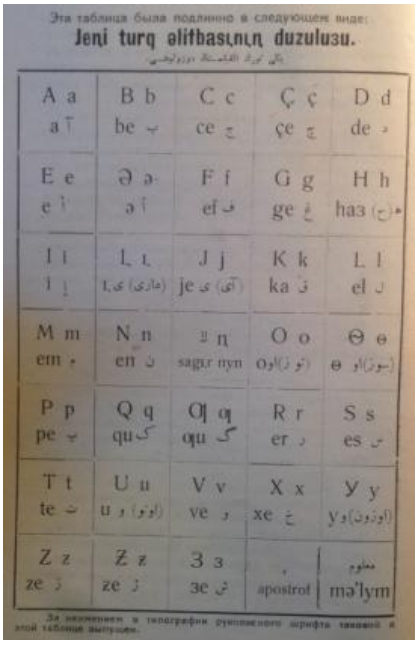

Fig. 6.12 - The New Turkic Alphabet in Azerbaijan (1922)[513]

[511] Agamalioglu, ibid., 3.

[512] Agazade and Karakashly, ibid., 67; F. Agazade, *Istoriia vozniknoveniia novogo tiurkskogo alfavita v ASSR, s 1922 po 1925 god* (Baku: Komiteta po provedeniiu novogo tiurkskogo alfavita, 1926), 25-26.

[513] Agazade, *Istoriia vozniknoveniia novogo tiurkskogo alfavita*, 10.

Conclusion: Towards the First All-Union Turcology Congress

An industrializing economy that transformed the instruments of knowledge production is central to understanding the history of script and language reforms in the Russo-Ottoman world. Through a direct encounter with the technology of the movable type, a rather indirect one with the telegraph, and the increased circulation of knowledge and information in the second half of the nineteenth century, there was a transformation in the imagination of what a "Muslim" meant across the Russo-Ottoman borders. The reform was not simply political or religious, as I have argued, but mechanical as well. The movable type was the primary instigator in the invention of what I called the "Typographic Muslim," a new techno-human whose access to information was central to its modernizing self. In the following decades, similar to turn-of-the-century Chinese phoneticization, the alliance between vernacularists and phonetic infrastructures generated one of the most intense reform movements that eventually changed the entire linguistic and informational landscape in Eurasia.

The fight over the Arabic alphabet was still not over, even after the Azeris' transition to the Latin alphabet. This transition in fact marked the end of a period of long grammatological debates, and the beginning of a new one that transcended the Turkic world. The last round that determined the future of the script in Transcaucasia and Central Asia was fought at the First All-Union Turcology Congress that convened in 1926 in Baku. Azerbaijan was justifiably the leader in Latinization, and its biggest opponent was the Tatars from Kazan, the last castle of the Arabic Alphabet. By the 1920s, however, the battle was no longer restricted to Turkic scholars and intellectuals. "Latinization" was now a Soviet All-Union project that Russian linguists and orientalists also took part in; and more importantly, it became a socialist project, and was integrated into the greater aim to create the New Soviet Man, a "superman," as Trotsky famously

put it, who "will make it his business to achieve beauty by giving the movement of his own limbs the utmost precision, purposefulness and economy in his work, his walk and his play."[514] It is the informational creation of this superman across Eurasia that the next chapter examines.

[514] Trotsky, "Revolutionary and Socialist Art," https://www.marxists.org/archive/trotsky/1924/lit_revo/ch08.htm [accessed on February, 2016].

Chapter 7

Revolutionary Informatics: Latinization across Eurasia

In 1934, the acclaimed film director Dziga Vertov shot a documentary movie, *Three Songs about Lenin (Tri Pesni o Lenine)*, in which he portrayed the progressive impact of socialism in Central Asia. Before the release of the documentary, Vertov was already a well-recognized figure in Soviet film industry, especially with the fame brought to him by *The Man with the Movie Camera* (1929). As opposed to *The Man with the Movie Camera*, in which Vertov tried to create a universal language for cinematography through a technical emphasis on montage, *Three Songs about Lenin* was a piece of propaganda. *Three Songs*, in one sentence, was about the achievements of socialism in Central Asia. At the heart of these achievements came technological advancements which emancipated the culturally and economically "backward" Turco-Muslim populations.

The opening scenes of the documentary starts with veiled women and blind and crippled men in an unidentified town in Central Asia. The town is in a dilapidated state. People are economically and spiritually deprived. A young woman recalls those days as she reads a book: "My face was in a dark prison … My life was blind … Without light and knowledge, I was a slave without chains." The young woman, after her sad recollection, stands up and leaves her house for the local Women's Club, where all the young women are now reading the works of Lenin, who is "more than a father to them," for "no father ever did for his kids what Lenin did for [them]." Lenin is the liberator who has brought light and knowledge to a timeless age of blindness and darkness.

The next scenes are montaged to highlight the liberation of Central Asia under socialism, narrated through women's bodily and mental emancipation, and the technologies of production.

The women are now free to take off their veils, learn to read and write (Russian and their native tongues), and use the wonders of modern technology to partake in the effort to build socialism. One scene shows women riding in a car; the next one shows a plane flying over a field with a huge tractor; next, a young, unveiled girl in front of a type case, arranging the letters into a composing stick; and then, the scene again shows the tractor, the field, and the plane.

Vertov's montage of scenes psychologically guides the spectator through a socialist program of machine-based economic and cultural development. Transportation, agriculture, and knowledge are all portrayed through the lens of advanced machinery — the car, the tractor, the plane, and the type case with an unveiled woman typesetter in front. All processed in the USSR.

The first two decades of the USSR witnessed an exceptionally rigorous concern with maximizing industrial and intellectual output to outgrow capitalist economies. Industrial machinery assumed a new role under socialism, as the machine became the model for the New

Soviet Man (and Woman), and the hope for unlimited production. Vertov's *Three Songs* was an ode to this early Soviet mechanization and its socialist — and imperialist — extension into Central Asia. His inclusion of the typesetter among the montage of industrial and agricultural machinery captured the significance given to intellectual as much as agricultural productivity. Shot during the mass literacy movement of the 1930s, when all the national writing systems in Central Asia were Latinized, Vertov's image of the typesetter, and other scenes that showed the indigenous people reading the Latin Alphabet, emphasized the significance of the machinery of knowledge production and circulation in a socialist world.

As I explained in the preceding chapter, the mechanization of intellectual production and the assembly of typographic nations were an ongoing process in the Russo-Ottoman world since the turn of the century—it was not a socialist invention. The modern impulse to create literate subjects and turn them into efficient knowledge workers, which we have seen in China, was ubiquitous also in Central Asia, the Ottoman Empire, and the Russian Empire from the second half of the nineteenth century onward. In each, the innovations in printing technologies, inauguration of telegraphic communication technologies, mass education movements, and expansion of bureaucratic apparatuses for the management of financial and governmental data proved to be challenging to the local systems of writing. The turn of the century was a global historical moment in which orthographical standardization, the construction of marks and spaces on the page, the invention of new indexical signs, and other techniques for increasing psycho-physiological efficiency were taking place all throughout the world. At the center of it all was the new info-mind of the human subject. Increasing labor efficiency was a core concern in the early Soviet Union as well, and Aleksei Gastev's Taylorism-induced theory of the "Scientific Organization of Labor" (*nauchnaia organizatsiia truda* [NOT]) offered the big intellectual and

neurophysiological push to optimize labor all throughout the Soviet Union. For Aleksei Gastev, mechanization of the neurophysiological human body was the highest achievement of the humankind, and the mechanization of the mind initiated the final stage in human creativity, the telos of human civilization.

This chapter continues the pre-history of the Chinese Latin Alphabet from where I have left in the preceding one. As I will show in this chapter, the first Chinese Latin Alphabet was devised under the name "New Dunganese Alphabet." Dungans were Chinese Muslims living in Central Asia, and their language was similar to Mandarin. What distinguished them from the Han was that they had in their possession an Arabic script, known as *xiao'erjin*, that they employed to transcribe Mandarin sounds. In 1928, two years after the invention of Unified New Turkic Alphabet which replaced the Arabic script of the Turks with that of the Latin script, the Arabic script of the Dungans was also replaced by the Unified New Turkic Alphabet. The first Latinized letters of a Mandarin-related speech was therefore a direct outcome of Mandarin *as written in the Arabic script*. In other words, a media archaeology of the Chinese Latin Alphabet demonstrates that the Latinization of Chinese was the product of a Eurasian history that was written in Arabic letters—hence the historical traces of Arabic letters in the Chinese Latin Alphabet.

This chapter will contend that these Latinized letters bespeak the significance of a socialist and internationalist story in writing the history of modern Chinese information society. In this chapter, I trace the technopolitical and techno-human origins of the Latinized Chinese letters themselves, and claim that the letters of the alphabet were not neutral representations of speech, but political and material manifestations of a socialist internationalist project that sought to create an alternative, global informational order. Latinization was the Soviet Union's technopolitical project, and was part of a greater socialist venture to create a New Soviet Man,

whose social and biological existence was in sync with modern instruments and machines, not unlike in Vertov's montaged scenes. Latinization was the invention of one common alphabetical interface for all the people in the world, which would standardize the production of information, optimize mental labor for all the nations concerned, and fuel a seamless flow of information and knowledge across nations and borders. From its beginnings as radical grammatology in the Ottoman empire and Russian Caucasus to its socialist reappropriation first in Baku and Moscow in the 1920s, and then across China all the way into the 1950s, Latinization offers a glimpse into an overlooked Eurasian technopolitical history.[515]

The first section of this chapter briefly charts out Aleksei Gastev's theory of the human-machine interface, and its impact on the creation of the New Soviet Man. For Gastev, new instruments of production could optimize the neurophysiological human body indefinitely, and allow the freedom to the brain, the autoregulator, to increase intellectual and creative output at an unprecedented magnitude. Scientific Organization of Labor, NOT, and its purpose to "install" a new proletarian culture of work offered a mode of existence not simply for industrialists and workers, but for writers, performance artists, and philologists and linguists. Mechanization of the body and the mind was the telos of human history, for all concerned.

The second section turns from human-machine integration to the First All-Union Turcology Congress that convened in Baku in 1926, and the Chinese Latinization Movement that started shortly thereafter. The Turcology Congress was a world historical event, for it was in this congress that philologists, linguists, and intellectuals put flesh on Latinization. As the

[515] Terry Martin and Michael G. Smith have shown how closely tied Latinization was to the nationality policies of the Soviet Union. Terry Martin, *The Affirmative Action Empire*; Michael G. Smith, *Language and Power in the Creation of the USSR, 1917-1952* (Berlin: Mouton de Gruyter, 1998). Martin defined Latinization as a "symbolic" political movement to inscribe national identities. The emphasis on the dimension of "nationality" and "symbolic politics" dilutes the movement's technopolitical and internationalist scope. I deem it more convenient to define it as a technopolitical one — not simply an extension of the nationality policies, but the politics of a greater integration between the man and the machine.

participants were all aware, this postcolonial congress was going to define the new paradigm of knowledge production relating to the Turkic people. It defied Russian imperialism and colonialism characterized by famous orientalists such as Nikolai Il'minskii, and turned to the medium of creating the new paradigm: the alphabet. For the Turkic scholars and intellectuals, the Turcology Congress was foremost of all about the Latinization of the Arabic alphabet. But for Russian philologists and linguists who partook in the congress, it was about forming the future technological basis for a global, socialist informational flow. The principles of NOT were again central to the debates, although the final resolution of the Congress owed more to the ideological alliance established between the Latinists and the Central Committee, than to the principles of NOT. What started as a Turkic project became an internationalist one, and the Russian philologists made the Latinized New Turkic Alphabet the blueprint for all national alphabets, of which Chinese, in the form of Dunganese, came at the top of the list.

The third section examines the international complexity of the movement through the poems of one communist Turkish poet in Moscow in the 1920s, Nazim Hikmet, who was a close friend of the Chinese revolutionary Xiao San, one of the leaders of the Chinese Latinization movement. Some of the poems that Nazim Hikmet composed during the 1920s combined elements of Gastevian human-machine integration, Mayakovsky's futurism, and communist internationalism, in which Xiao San was the main protagonist. Through Nazim Hikmet's two poems, "To Be Mechanized" and "Giaconda and Si-Ya-U," I would like to present the relentlessly innovative and cosmopolitan nature of the 1920s that strived to build a socialist network of nations through a common, transcultural techno-human.[516] For the "Red Cosmopolitans" of the 1920s, Gastev's

[516] The term "red cosmopolitan" was coined by Katerina Clark. See, Katerina Clark, "European and Russian Cultural Interactions with Turkey: 1910-1930s," *Comparative Studies of South Asia, Africa and the Middle East,* vol. 33, no. 2 (2013), 201-213.

human-machine symbiosis was a ground for literary and grammatological internationalism that gave birth to one child only, Latinization.

A media archaeology of the Chinese Latin Alphabet (CLA) reveals the history of a transnational flow of technology from Transcaucasia and Central Asia to China. This alternative geographical and intellectual genealogy of the Chinese information society is important for two reasons. One, the Latinization of Chinese cannot be subsumed under a familiar juxtaposition between an ideographic China and an alphabetical West. The CLA was not just another proposal to phoneticize the Chinese writing system to move closer to a monolithic Western civilization—it was a revolutionary proposal to transform the entire physiological, historical, and mental interface in order to internationalize China, to partake in a global anti-colonial struggle, and to create a synchronic informational materiality that minimized historical and cultural differences, and maximized the international transmission of knowledge.

Two. The history of Latinization hints at the historical contingencies in the creation of informational orders, and the possibilities for contemplating alternative orders of transnational information societies. What connected the Ottoman Empire, Transcaucasia, Russia, and China was the common goal of optimizing knowledge production, but each proposed script came with its own particular system of knowledge and politics. The final product (the Latin Alphabet) took shape through intense debates, power struggles, and strategic alliances. In the end, the technopolitics of the script changed the entire technological, intellectual, and political landscape of Eurasia. It was quite different from the radical grammatology of the Ottomans or the Azeris, or the creative destruction of the simplifiers of Chinese. I would like to call Latinization "revolutionary informatics," whose aim was to invent a completely new mode of informational existence in an era of communist internationalism.

In contrast to the "creative destruction" that the Chinese architects of the page were spearheading in the 1920s and 30s, revolutionary informatics of Latinization, I contend, was a deliberate attempt to devise a critique of the dominant modes of knowledge production, sustained by a technopolitical control over infrastructures. Latinists were the first to realize the revolutionary potential of the script as the pivotal infrastructure to create a new economy of knowledge. They were not creative destroyers, for they did not want to remain within the bounds of an extant system, but critical destroyers, who wanted to overthrow the existing order of knowledge through inventing a new infrastructure that asserted new parameters for a socialist and internationalist knowledge economy.[517] It was destructive, violent, and aggressive as much as revolutionary, radical, and exhilarating; and if we are to begin thinking about "critical destruction" in technologies of knowledge, perhaps Latinization across Eurasia is a good place to start.

I. Humans and Machines: Scientific Organization of Labor in the USSR

Aleksei Gastev (1882-1939) was the leading Russian figure in the efforts to optimize labor efficiency in industrial production. An aficionado of Frederick Taylor and "scientific management," he introduced Taylorist methods into the Soviet Union under the term "scientific organization of labor" (*nauchnaia organizatsiia truda*, commonly abbreviated as "NOT"). Originally a poet, hailed as "the Ovid of engineers, miners, and metal workers," Gastev was an industrial romantic, for whom the machines were extensions of the human body, not unlike

[517] The juxtaposition between "creative destruction" and "critical destruction" has been posed by Alan Liu to problematize the place of the "digital" in the humanities. See: Alan Liu, *Laws of Cool: Knowledge Work and the Culture of Information* (Chicago: University of Chicago press, 2004), 9.

McLuhan's definition of media.[518] After the October Revolution, he turned from poetry to industrial production, formed the Central Labor Institute in 1920, theorized the place of the human in an age of mechanical production, and put it into practice. The goal of NOT was to "process man," as the slogan of the TsIT ran: "Mankind learned how to process things; the time has come to thoroughly process man."[519]

Gastev did not draw an artificial distinction between the human and the machine, nor did he envision a future where machines would replace human labor. For him, the machine was the ideal for the human itself. The central concept he used to define the creation of a new work culture under socialism was *ustanovka*, variously translated as "setup," "arrangement," or "installation." Under Gastev's TsIT, proletarian work culture was an arrangement of humans and machines, an installation of a network between humans and non-humans in which the boundary between the two was no longer clear. The highest stage of human civilization, socialism, signified nothing less than a seamless communication between the machine and the human, an ultimate mechanization of the human body and mind.

For Gastev, the mechanization of labor, its organization, management, and study was among the most significant achievements in the psycho-physiological culture of the proletariat.[520] The modern complex systems of machinery, composed of instruments and laborers, claimed Gastev, "establish particularly connected collectives, and give birth to particular types of people, whom

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[518] Kendall E. Bailes, "Alexei Gastev and the Soviet Controversy over Taylorism, 1918-1924," *Soviet Studies*, vol. 29, no. 3 (July 1977), 373; Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York: McGraw-Hill, 1964).

[519] Mark R. Beissinger, *Scientific Management, Socialist Discipline, and Soviet Power* (Cambridge: Harvard University Press, 1988), 51.

[520] Aleksei K. Gastev, *Kak Nado Rabotat': Prakticheskoe Vvedenie v nauku organizatsii truda*, 2nd ed. (Ekonomika, 1972), 28. "Труд механизированный, но требыющий или сложного или настороженного управления, самый интересный и ответственный в смысле методов изучения и ценности психо-физиологической культуры пролетариата."

we must embrace just as we embrace the machine. … *History really demands the brave design of human psychology that depends on historical factors, like machinism*."[521] Emancipation of the human mind, in other words, demanded mechanization and automatization:

> We start from the most primitive, most elementary motions, and produce a mechanization of the man himself. … The perfect acquisition of a given move means maximum automatism. If this maximum automatism is going to grow, then the voltage (*napriazhenie*) of the nervous stimuli will decrease, and with that, the nervous energy will be free for all the new inventive stimuli, and the power of the individual will rise to infinity. … If we take into consideration the fact that a human differs from a machine in that he has that beautiful autoregulator called a brain, then the creative mechanization of man, of course, can go immeasurably further then that laid in the modern machine, in the instrument. This principle of mechanization or biological automation must go very far to include what is called the cognitive activities of man.[522]

The purpose of man was to tame the nervous tension in the body to allow that unlimited burst of cognitive energy. The new proletarian work culture was going to synchronize the man and the machine, so that the body was fully automatized, nervous tension decreased to the utmost extent. Every physical move would be an extension of a mechanized, embodied memory. "In order to become a strong cognitive worker," wrote Gastev, "one must arrange a colossal memory; in other words, one must build a voltage (*napriazhenie*) that can quickly and in various ways encompass the diverse automations of memory; and then, these automations can be included in newer and

[521] ibid. Emphasis is mine. Современная машина, особенно же машинные комплексы … создает особенные связанные коллективы, рождает особые типы людей, которые мы должны принять, принять так же, как мы принимаем машину. … история настоятельно требует ставить … смелого проектирования человеческой психологии в зависимости от такого исторического фактора, как машинизм."

[522] ibid., 198. Мы начинаем с самых примитивных, с самых элементарных движений и производим машинизирование самого человека. … Совершенное овладевание данным движением подразумевает максимум автоматизма. Если этот максимум автоматизма будет нарастать, а тем самым напряжение нервного стимула будет уменьшаться и таким образом нервная энергия будет освобождаться для все новых и новых инициативных стимулов, то будет увеличиваться до беспредельности. … Если мы примем во внимание, что человек отличается от машины именно тем, что он имеет такой прекрасный авторегулятор, как мозг, то творческое машинизирование человека, конечно, может идти неизмеримо дальше, чем это заложено в современной машине, орудии. Этот принцип машинизирования или биологического автоматизма должен идти очень далеко, вплоть до так называемой мыслительной деятельности человека.

newer combinations … and thus the human-thinker can score victory after victory. The automation of man is not in conflict with his organic creativity."[523]

The homo-machinus that Gastev imagined was the next and ultimate stage in human evolution. The seamless integration of a mechanized human memory into the neuro-muscular biological system defined the future of cognitive work and intellectual creativity. The free mechanical mind could only take place after automation expanded in all directions to include all human neuro-muscular activity. The repetition of a simple bodily move, such as hammering a nail, could lead to hypnosis due to the simplicity of the move, but, "if automation includes everything more and more, and if a given man, a manufacturer, gets used to a progressive inclusion of all new variables, then he becomes an unlimited creator."[524] The automation of the human mind — i.e., the mechanization of human memory — and its complete integration with the neurophysiological body and the instruments of labor produced a harmonious and mutually dependent existence between the cognitive laborer and his tools of production — an embodied, mechanized existence that brings to mind the cybernetician Norbert Wiener.[525] For Gastev, the mechanization of memory was not a step back in human progress, and mechanized minds did not mean inert mental laborers; quite the opposite, mechanization amplified the cognitive powers of

[523] ibid. Ведь недаром—для того, чтобы быть сильным работником мысли, надо располагать колоссальной памятью, т. е., иначе говоря, надо уметь создавать такое напряжение, при котором быстро и во всевозможнейших направлениях включались бы различные автоматы памяти, эти автоматы включались бы во все новые и новые комбинации… и, таким образом, человек-мыслитель одерживал бы победу за победой. Автоматизм человека не находится ни в каком противоречии с его органическим творчеством.

[524] ibid., 199. Но если все больше и больше включаются автоматы, если данный человек, а следовательно, и производитель привыкает к прогрессирующему включению новых переменных, то он становится беспредельным творцом.

[525] Norbert Wiener notes in his landmark work: "It is the thesis of this book that society can only be understood through a study of the messages and the communication facilities which belong to it; and that in the future development of these messages and communication facilities, messages between man and machines, between machines and man, and between machine and machine, are destined to play an ever-increasing part." Norbert Wiener, *The Human Use of Human Beings: Cybernetics and Society* (Houghton Mifflin, 1950), 16.

the human mind. In order to extend NOT into the cognitive activities of man, Gastev also spearheaded the establishment of the All-Russian Psychotechnical Society (*vserossiiskoe psikhotekhnikoe obshchestvo*) in 1927, with Isaak N. Shpil'rein (1891-1938) as the director. Intelligence tests, psychological and psycho-physiological research for schools, libraries, army, and industries were thus undertaken all around the Soviet Union to cognitively manage the development of socialism.[526]

Gastev's homo-machinus was also a *homo-informaticus* whose linguistic and grammatological skills were automated in modern factory life. In Gastev's human-machine complex, movement of bodies and instruments were in sync with the flow of information from the machine to the body, and from the brain to the instruments and back. The circulation of electricity through the telegraph lines, telephone, and radio was for Gastev a confirmation that the double bind of electricity and information animated modern existence.[527] The factory was a laboratory of this world buzzing and humming with electrified flow of data. In this massive mechanized complex of bio-mechanical integration, the cognitive laborer's memory could be automated through the mechanization of language and writing. There was no room for ambiguity in mechanized semantics, the fuel for optimum cognitive work. The "word" (*slovo*), claimed Gastev, should be created in the image of the crude language of commercial letters, the language of telegrams, or the simple dialogues of people in stations and banks. Language had to be "short,

[526] Beissinger, ibid., 141-144; "Vserossiiskoe psikhotekhnicheskoe obshchestvo - deiatel'nost' pravleniia," *Psikhofiziologiia truda i psikhotekhnika*, no. 1 (1928), 83. Shpil'rein was known for his study on the linguistics of the Red Army. See, Craig Bandist, "Psychology, inguistics, and the rise of applied social science in the USSR: Isaak Shpil'rein's Language of the Red Army Soldier," in *Politics and Theory of Language in the USSR, 1917-1938: The Birth of Sociological Linguistics*, eds. Craig Bandist and Katya Chown (London: Anthem Press, 2010), 151-167. Psychotechnical research was undertaken in different locales, such as Moscow, Leningrad, Kazan', Minsk, Tiflis, Baku, Khar'kov, Simferopol', and Riga. The subjects ranged from library work (in Tblisi) to heavy loading (in Baku). See: *Psikhofiziologiia truda i psikhotekhnika,* no. 3-4 (1928).

[527] Devin Fore, "The Operative Word in Soviet Factography," *October* 118 (2006), 118-119.

exact, categorical."[528] The same was true for writing as well. "If we want to reach that stage of splendor in which every official, every active and thinking person can possess the art of stenography," wrote Gastev, "then we must exhibit at least the demand that every person, who calls himself cultured, could learn to write distinctly and legibly and at the same time bring the speed of his own writing to thirty words a minute."[529]

The emphasis on speed, psycho-physiological economy, and mechanization were embraced by many, but there were no agreed-upon principles of NOT. Pavel Kerzhentsev, the founder of the "Time League," a society whose purpose was to eliminate the waste of time in modern life, accused Gastev and Soviet Taylorism of being too American; others called it "vulgar-bourgeois Taylorism" that did not seek to produce a new man, but to reduce it to a machine. Yet, Gastev still gave support to the establishment of the Time League, along with the psychotechnician Isaak Shpil'rein and the famous experimental dramaturgist Vsevolod Meyerhold.[530] Despite the differences in theoretical approaches to NOT, its impact in the 1920s was visible across many disciplines and fields. Pyschotechnicians were trying to organize the social institutions based on cognitive skills, neurophsyiologists of labor wanted to determine the optimum patterns of physical moves, performance artists were measuring the most efficient use of the human body, futurist literary figures of the Left Front of the Arts were embracing NOT's techno-humanist call,

[528] Gastev, ibid., 97, Слово должно быть кратко, точно, категорично.

[529] ibid., 97-98. Если мы не можем достигнуть такой роскоши, чтобы каждый служащий или каждый активный и инициативный человек мог обладать искусством стенографии, то должны выставить по крайней мере требование, чтобы каждый человек, который называет себя культурным, приучался бы разборчиво и четко писать и в то же время смог довести Скорость своего собственного письма до 30-ти слов в минуту.

[530] Beissinger, ibid., 50-58.

and most importantly for my purpose, linguists and grammatologists sought after the optimum integration between the alphabet and the human.[531]

II. The First All-Union Turcology Congress and Latinization across Eurasia

The search for an economy of signs, elimination of semantic ambiguity, the physiology of labor in writing, typesetting, and typing were all problems that resonated with NOT. An alphabet was an instrument of production, and just like Gastev's human-machine complex of information flow, the alphabet was in need of optimization to create the most efficient informatic integration between the technologies of reading and writing, such as the hand, pen, fingers, eyes, brain, movable press, typewriters, or the telegraph. The optimization of informational flow between a mechanized human and its surroundings through alphabet reforms inevitably involved debates about the future politics of information. Early Soviet intellectuals' search for an integration of the human and the machine permeated into the ongoing discussions about the place of the alphabet in the Turco-Islamic world. The fate of the alphabet was determined at last at the First All-Union Turcology Congress, where Russian and Turkic scholars all voiced their opinions about the future of information in Central Asia, the Soviet Union, and the world at large.

The First All-Union Turcology Congress convened in Baku, Azerbaijan, in 1926. The purpose of the Congress was clear from the start, as the Azerbaijani delegate Mirza Davud Bagir oglu Huseinov (1894-1938) described it: "The Central Committee knows that this work was done for the alphabet; we also know that the [Turcology] Congress was put together not in order

[531] On the use of NOT principles in performative arts, see, Ana Olenina, "Engineering Performance: Lev Kuleshov, Soviet Reflexology, and Labor Efficiency Studies," *Discourse*, vol. 35, no. 3 (2013), 297-336. The neurophysiologist Nikolai Bernstein also conducted research on scientific organization of playing the piano: Julia Kursell, "*Piano Mecanique* and *Piano Biologique*: Nikolai Bernstein's Neurophysiological Study of Piano Touch," *Configurations* 14.3 (Fall 2006): 245-273, 308. See, Devin Fore, ibid., for an analysis of NOT and *Lef* writers.

to listen to the speeches of Barthold or Samoilovich (*laughter*), but to study the points of view regarding the alphabet."[532] The stenographic records included the "laughter" that accompanied the mention of the names Barthold and Samoilovich, the two giants of Imperial Russian Turcology. This laughter signaled a break away from the Turcology practiced in imperial times, a discipline that informed Russian colonialism in Central Asia.[533] In fact, just six years earlier, in 1920, Baku was also the host for the First Congress of the Peoples of the East, an anti-imperialist congress that was organized by the Communist International, and convened with the participation of communists from all around the world. A turning point in the history of postcolonialism, the First Congress of the Peoples of the East was an effort to generate new patterns of producing knowledge about the colonized East.[534] The First All-Union Turcology Congress in 1926 convened in the same anti-imperial spirit, jeered at the imperial knowledge patterns with a laughter (plausibly a nervous one), and set out to discuss the central issue that lay at the heart of postcolonial politics: the alphabet.

Samed Aga Agamalioglu was the president of the Congress, and the loudest voice in support of Latinization. Other Latinists from Azerbaijan, such as Fahrad Agazade and Abdulla Tagiev, also joined Agamalioglu's defense of the new alphabet. In addition to these figures, the

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[532] GARF (Gosudarstvennyi Arkhiv Rossiiskoi Federatsii), F. R-5402. Op. 1, D. 109, L. 41, quoted in A. Frings, "Sorevnovanie Modelei: Tatarskaia delegatsiia na tiurkologicheskom s''ezde v Baku v 1926 g." *Etnograficheskoe obozrenie*, no. 6 (2005), 44. "ЦК знает, что это дело созвано для алфавита; мы же знаем, что Съезд созван не для того, чтобы мы выслушивали доклады Бартольда или Самойловича (*смех*), а для того, чтобы выяснить точку зрения на алфавит."

[533] In contast to Huseinov's remark, Vera Tolz has recently argued that the imperial Russian scholars of the East were in fact critical towards Western orientalism and its views of the non-Europeans. The orientalism practiced in Russia was in some respects different than Edward Said's definition of the term. See, Edward Said, *Orientalism* (New York: Pantheon Books, 1978); Vera Tolz, *Russia's Own Orient the Politics of Identity and Oriental Studies in the Late Imperial and Early Soviet Periods* (Oxford ; New York: Oxford University Press, 2011).

[534] Robert J. C. Young, *Postcolonialism: An Historical Introduction* (Malden: Blackwell, 2006); John Riddell (ed.) *To see the Dawn: Baku, 1920 — Frist Congress of the Peoples of the East* (New York: 2010); Nergis Erturk, "Toward a Literary Communism: The 1926 Baku Turcological Congress," *Boundary 2* (Summer 2013), 183-213.

Congress hosted the leading linguists and writers from all around the Soviet Union. The Russian Iranologist Lev Ivanovich Zhirkov (1885-1963) from Moscow, the world specialist on Mongolian languages Nicholas N. Poppe (1897-1991) from Leningrad, the Russian linguist Nikolai Iakovlev (1892-1974) from Moscow, the Kazak intellectual Ahmed Baytursun (1872-1937) from Kyzyl-orda, the Kazak journalist Nazir Tiuriakulov (1892-1937) from Moscow, the prominent specialist in Turkic dialects Bekir Chobanzade (1893-1937) from the Crimea, the leading Tatar literary figure Alimjan Ibrahimov (Galimdzhan Ibragimov, 1887-1938) from Kazan, and many others.[535]

For Soviet intellectuals in the 1920s, the future of the alphabet was nothing less than the future of the "East" and world socialism. Latinization, which had started as an extension of the movable press in the Turco-Islamic world, was now the futurist search for a new integration between the machine and the human. It was the invention of one common interface for all the people in the world, which would standardize and optimize mental labor for all the nations, and fuel the seamless flow of information between different linguistic communities. Yet, how could one achieve this integration?

For some, the optimum integration between the human and the machine demanded a mathematical calculation of phonemes. Nikolai F. Iakovlev, who was later appointed as the president of the techno-graphic commission of the All-Union Central Committee of the New Alphabet, took mechanization to the extreme by inventing a mathematical formula for alphabets.[536] The economy of signs was the primary concern of Iakovlev. There were 12 pairs of

[535] The list of all the attendees is given in *Pervyi Vsesoiuznyi Tiurkologicheskii S''ezd (26 Fevralia - 6 Marta), Stenograficheskii otchet* (Baku: Obshchestvo Obsledovaniia i Izucheniia Azerbaidzhana, 1926), 423-426.

[536] Iakovlev was present in the First Turcology Congress and in all of the plenums of the New Turkic Alphabet that convened yearly until 1931. The All-Union Central Committee of the New Alphabet was the former "All-Union Central Committee of the New Turkic Alphabet" that was formed in 1926, right after the Congress, to deal with the

hard and soft consonants in Russian: м, н, л, р, в, ф, з, с, б, п, д, т, and the same signs written with a soft sign "ь", мь, нь, ль, рь, вь, фь, зь, сь, бь, пь, дь, ть. The use of the soft sign was crucial for the meaning of a given word, such as the difference between мел (chalk) and мель (a shallow place). And among the five vowels (а, е, у, о, ы/и), there were only four that could be used with a hard or soft consonant (а, у, о, ы/и). So, even though there were 39 phonemes in Russian, there were only 32 signs, because instead of showing 12 soft consonants as 12 new letters, the Russian writing system designated the softness of consonants with the help of 4 letters (я, ю, и, ё), or with the help of the soft sign ь. And thus instead of 12 letters, only 4 letters were brought in to the alphabet. This was what Iakovlev called the "economy of consonants."[537]

Iakovlev was perhaps more ambitious than any other linguist who joined the First All-Union Turcology Congress. Based on his study of the Russian alphabet, Iakovlev came up with a mathematical formula which, he claimed, could be used for creating the most economic alphabet for any given language: $A = (C + V) - (\pm C' \mp V') + 1$, in which "A" stood for Alphabet, "C" for the total number of consonant-phonemes, "V" for the total number of vowel-phonemes, "C'" for the number of consonant-pairs (in Russian, 12 pairs of hard and soft consonants), "V'" for the number of vowel-phonemes that could be used with a hard or soft consonant (4 in the Russian alphabet), and the "1" in the end for an extra sign that could help distinguish between the hard and soft consonant (the soft sign "ь" in the Russian alphabet). The optimum number of signs for the Russian alphabet was thus:

issues relating to the Latinization of Turkic languages. In 1930, the committee changed its name to the All-Union Central Committee of the New Alphabet.

[537] N. Iakovlev, "Problemy natsional'noi pis'mennosti vostochnykh narodov SSSR." *Novyi Vostok,* no. 10-11 (1925) 237.

$$A = 33 + 5 - 12 + 4 + 1 = 31.$$[538]

For those languages such as Kyrgyz, Uzbek, Kara-Kyrgyz, in which the harmony of vowels occupied an important place, Iakovlev argued that an "economy of vowels" should be brought in, as accomplished by Dos-Magomegova for Kyrgyz, and by Tiuriakulov for Uzbek.[539]

Iakovlev was also one of the fiercest critics of Russification through the Cyrillization of the Muslims' writing systems, as the famous orientalist Il'minskii and others have attempted to do at the end of the nineteenth century. Latinization signified the complete abandonment of Russian imperialism, and Iakovlev also did not shy away from summoning the philologists to Latinize Russian itself. The Latin alphabet, after all, was an affirmation of the break with a colonialist past, and it was better fit for the modern man's (*sovremennyi chelovek*) physiological moves of the hands and eyes in writing and reading — the speed of writing in Latin as opposed to Cyrillic was 14-15 % faster, and it was four times faster to read Latin than Cyrillic. Besides, the money that could be saved in printing Latin letters instead of Cyrillic was around 11-12%.[540] The jury, however, was still out on the Latinization of Russian. And when Lenin allegedly told Anatoly Lunacharsky, the Commissar of Education, that the Russian population was not yet prepared for Latinization, the project was suspended indefinitely.[541] For Iakovlev, it remained as a future ideal. In the meantime, there were dozens of other languages that awaited Latinization.

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[538] N. Iakovlev, "Matematicheskaia formula postroeniia alfavita," *Kul'tura i pis'mennost' vostoka*, no. 1 (1928), 49-51.

[539] Iakovlev, "Problemy natsional'noi pis'mennosti vostochnykh narodov SSSR," 237. Iakovlev went further to test out his formula with Turco-Tatar languages as well. See, Iakovlev, "Matematicheskaia formula postroeniia alfavita," 52-64. Iakovlev's mathematical formula was criticized by the participants of the Turcology Congress. See, R. O. Shor, "K voprosu o sokrashchenii alfavita (kriticheskie zamechaniia na stat'iu prof. N. F. Iakovleva 'Matematicheskaia formula postroeniia alfavita', *Kul'tura i pis'mennost' vostoka,* no. 1 (1928)," *Kul'tura i pis'mennost' vostoka,* no. 2 (1928), 62-75.

[540] Nikolai Iakovlev, "Za latinizatsiiu russkogo alfavita," *Kul'tura i pis'mennost' vostoka*, no. 6 (1930), 37.

[541] A. Lunacharskii, "Latinizatsiia russkoi pis'mennosti," *Kul'tura i pis'mennost' vostoka*, no. 6 (1930), 22.

Lev I. Zhirkov, a linguist and an Iranologist, did not go so far as to formulate the mathematics of writing, but he believed that the technical perspective offered by NOT provided the solution to the problem. The technical perfection of the alphabet had certain norms. Its convenience to the eye of the reader came at the top of the list. Second, its reproduction on a given surface had to be easy given the technological instruments (such as the printing press, pen on paper, or the typewriter). And third, its simplicity was a necessary quality for educating the masses. The Arabic alphabet, Zhirkov commented just like all the others before him, did not conform to any of these rules — it was categorically not possible for the Arabic alphabet to conform to the principles of NOT.[542]

A member of the Tatar delegation, Alimjan Sharaf (1886-1950), disagreed. A strong proponent of Arabic letters, Sharaf delivered a long speech at the Congress to claim that the Arabic alphabet did comply with NOT. Technologies of communication such as telephone, telegraph, or radio transmitted information only in space, noted Sharaf, but the alphabet (*shrift*) was the "instrument for communicating human thoughts and mental achievements through both space *and* time."[543] A change in the alphabet was a break in the flow of information both spatially and temporally, and the principles of NOT, argued Sharaf, presented the solid ground on which to keep the flow as it was. Was the Arabic writing system really inadequate to convey information, and if it was, then how could it be ameliorated without temporal destruction? In which alphabetical system was the process of reading a printed or a handwritten material the

[542] *Pervyi Vsesoiuznyi Tiurkologicheskii S''ezd*, 232-233; Zhirkov, L. "K reforme alfavitov vostochnikh narodnostei," *Novyi Vostok,* no. 10-11 (1925), 223-235.

[543] *Pervyi Vsesoiuznyi Tiurkologicheskii S''ezd*, 243. Emphasis mine.

fastest? Which alphabet proved to be the fastest in writing, and the most convenient for typography?[544]

First of all, diacritical marks could be placed on vowels to signify the exact sounds, and help the Arabic alphabet reach phonetic accuracy — a point that reminds us of Namik Kemal and Ebuzziya Tevfik's proposals a few decades back. In fact, according to his calculations through comparisons between Yakuts, Bashkirs, Tatars, and Azeris, Latin letters worked only with 47-56% of the sounds in Turkic languages; for the rest, the Latin letters had to be given new sounds, or completely new letters were needed. The Arabic Alphabet, on the other hand, needed only 15% more signs to achieve linguistic accuracy. As for the reading speed, the words, wrote Sharaf, were not cognitively recognized as a combination of letters, but as hieroglyphs, just like Chinese or Egyptian. If the word "*can*" جان (spirit), for instance, was written separately as ج ا ن, it would not be decipherable to the literate mind, for that separation would eliminate the hieroglyphic quality of the word, replacing the real word with an uncanny replica. The reason people had a difficult time reading Turkic languages with Latin alphabet was not because they did not know the letters of the alphabet, but because the "hieroglyph-word" (*ieroglif-slovo*) was not recognized when written in Latin letters. What mattered in reading was the final shape of the word, rather than separate letters — similar to what the simplifiers of Chinese were pointing out for character-forms (*zixing*). As for the problem of "dots" in creating confusion, Sharaf saw no difference between the Arabic letters ب پ ت ث and the letters in the New Azerbaijani Alphabet which were again optically very similar to one another: o, ɵ, q, ɑ, g, e, ə.

[544] ibid., 244. His speech was immediately translated to Turkish, see, Alimcan Şeref, *Harflerimizin Müdafaası: Bakü Türkiyat Kongresinde Kazan Murahhası Alimcan Şeref Beg tarafından Okunan Rapor*, trans. Abdullah Battal (Yeni Matbaa, 1926).

In terms of the speed of writing, Sharaf believed that the Arabic alphabet was physiologically more suitable to the productive moves of the hand. In writing Latin letters, although the line was written from left to right, the movement of the hand followed a counter-clockwise direction, such as in o, b, e, etc., which was the reason for writing the line from left to right. In Arabic, the movement was in the reverse order, hence while the letters س ر و followed a clock-wise direction of the hand in production, the line itself followed an order from right to left. The order of the line and the manual moves were thus in conformity; technically, there was nothing wrong with the directions of writing. Moreover, certain words saved more physical energy when written in Arabic letters, such as the word "balta" (axe). If written in Arabic "بالتا," the hand made only 8-9 movements including the dots, but in Latin letters, it took 13-14, demanding 30-35% more effort.[545] In other words, the physiology of the hand and the manual moves in the production of a letter were in compliance with the principles of NOT. The Latinists were right, Sharaf claimed, in pointing out the deficiency of the Arabic alphabet in typography — the number of words in Arabic letters that fit into a line could not compete with those in Latin letters, the diacritical marks slowed down the speed of typesetting, and the number of yearly publications did not match those in the Latin alphabet. However, the reform movement in Arabic letters was already in progress in Kazan since the late-nineteenth century, noted Sharaf, and printers had already started achieving remarkable results.[546] In sum, reforming the Arabic letters was a better solution to optimize labor, and keep the temporal flow of information from the past to the future unobstructed.

[545] *Pervyi Vsesoiuznyi Tiurkologicheskii S''ezd,* 246-252.

[546] For a brief discussion of typographical reform, see *Pervyi Vsesoiuznyi Tiurkologicheskii S''ezd,* 245 and 263-264.

Sharaf's arguments were not welcomed at all by the Latinists. Tiuriakulov, Zhirkov, and Iakovlev were fast to retaliate with their own efficiency arguments.[547] But more than the physio-temporal aspect of alphabet-production, the geography of the Arabic alphabet and the plausible connections between Pan-Turkism, Pan-Islamism, and the Arabic alphabet proved to be the bigger problem that Sharaf did not touch upon. Alimjan Ibrahimov, a colleague of Sharaf from Kazan, and also a supporter of the Arabic alphabet, spoke at the Congress in favor of alphabet reform from within. For Ibrahimov, Arabic alphabet was necessary to maintain the temporal dimension of the nation, and preserve the access to historical information created by the forefathers—an argument that brings to mind that of the Chinese simplifiers. If the nation was a closed informational system, the alphabet was the key to its data, and without the key, there was no cultural access. Furthermore, Ibrahimov was himself a milder version of Ismail Gasprinskii, and believed in a cultural-literary federation of Turkic languages:

> I'm using the principle of the cultural and literary federation of Turkic languages with caution. We cannot build one Turkic language — neither phonetics nor morphology nor the socio-economic status [of the languages] permit that, but we, as Turkic people, [also] cannot be isolated from each other. … I insist: integration (*neotorvannost'*) will be reached in a federation, not a confederation, but a federation of Turkic languages, in which each language will be autonomous with its own structure, but the general base, general rules, and general lines in all Turkic languages will be taken into consideration.[548]

Right after the Congress, Samed Aga Agamalioglu immediately published *In Defense of the New Turkic Alphabet* to promote Latinization in the Turco-Russian world. Agamalioglu dismissed Sharaf's arguments as "absurd theoretical reasoning," and wrote that Ibrahimov's

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[547] *Pervyi Vsesoiuznyi Tiurkologicheskii S''ezd*, 264-265, 313-316.

[548] *Pervyi Vsesoiuznyi Tiurkologicheskii S''ezd*, 165. Я не много осторожно употребляю этот принцип культурно литературной федерации тюркских языков. Мы не можем создать единого тюркского языка, — это не позволяет ни фонетика, ни морфология, и главным образом социально-экономическое положение, но мы, тюркские народы, не можем изолироваться. … Я настаиваю: неоторванность будет заключаться в федерации, даже не в конфедерации, а федерации тюркских языков, что каждый язык будет автономен в своем строении, но у всех тюркских языков есть общие основы, общие черты, которые должны быть приняты во внимание.

cultural-literary federation "smelled of Pan-Turkism."[549] Ibrahimov's Arabism, according to Agamalioglu, meant a bodily relationship (economic and political) with the Soviet nations, but a spiritual relationship (ideological and literary) with all Turkic countries. "My sweet comrade," noted Agamalioglu, "none of this differs from what our mullahs say every day in mosques."[550] Ibrahimov was in fact not an Ismail Gasprinskii — he never tried to invent a common language for all the Turkic people. But his defense of the Arabic alphabet and his demand that the common lexical and grammatical elements that comprised all Turkic languages should be preserved and developed in order to create a "cultural and literary federation of Turkic languages" did not sound innocent at a time when late-imperial Pan-Turkic ideals were still embraced by many Central Asian intellectuals.

Besides his quest for semantic standardization and economy in thought and reading, Agamalioglu was clearly on a crusade against Islam since the early 1920s. He consciously constructed a narrative of Islamism versus secularism, and positioned the Latinists as the progressive partners of the Soviet Union, and the Arabists as the obsolete Pan-Islamists. He portrayed the state of affairs before the October Revolution as one shaped by the dominance of mullahs, fanaticism, primitive economy, and the absence of schools and literacy.[551] Literacy, mechanization, productivity, and emancipation from superstition and religion were the building blocks of socialism in Central Asia—ideas that were later immortalized by Vertov's *Three Songs About Lenin.* Agamalioglu's was thus a conscious rhetorical effort to win the Soviet Union on the side of the Latinists. He did not even hesitate to portray Akhundzade, the very first reformer of

[549] S. Agamalioglu, *V zashchitu novogo tiurkskogo alfavita* (Baku: AZGIZ, 1927), 15 and 64.

[550] Agamalioglu, ibid., 66. Милый мой товарищ, ведь все это ничем не отличается от того, что говорят наши муллы ежедневно в мечетях

[551] Agamalioglu, *Neotlozhnye kul'turnye nuzhdy tiurko-tatarskikh narodov*, 8.

the script, as an "atheist," thereby ensuring his acceptance by the new regime.[552] Besides, didn't Lenin himself tell Agamalioglu that Latinization was the "revolution in the East"? Apart from Agamalioglu's own narrative, before the fall of the Ottoman Empire and the Bolshevik Revolution, there was indeed a strong Pan-Islamist intellectual current among the Turco-Tatars in the Russian Empire as well as Arab and Ottoman intellectuals in the rest of the Islamic world, and even Japanese military and financial support that fed Pan-Islamism across Eurasia.[553] Agamalioglu was a charismatic leader, a persuasive speaker, and a pragmatic intellectual who knew how to manipulate public opinion in ways that would serve the interests of the Latinists.

The defense of the Arabic alphabet was almost a lost cause, despite all the arguments in favor of scientific efficiency and NOT. Pan-Islamism/Turkism was too serious of a problem, Agamalioglu was too strong of a figure to stand up against, and Latinization itself was too revolutionary to abandon. Technology and politics were inseparably bound in an effort to invest in a linguistic infrastructure that, even if not rational at all from a strictly economic perspective, was an investment "in a new humanity, a new being, a new cosmos."[554] As Zhirkov, Iakovlev, and Tiuriakulov all pointed out, the Latin alphabet for Turkic people was not going to be limited to the Turkic people, but was going to be the universal writing system for all the nations. If Arabic were to remain, it was going to be limited to the Turco-Tatars at best, and was going to pose an obstacle to informatic internationalism. While Sharaf and Ibrahimov had the Turco-

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[552] S. Agamalioglu, "Mirza Fatali Akhundov va Jeni Alifba (1928)," in *M. F. Akhundov: Magalalar Macmuasi,* (Baky: Azarbaycan SSR Elimlar Akademiyasi Nashriyyati, 1962), 108.

[553] Jacob M. Landau, *Pan-Turkism: From Irredentism to Cooperation* (Indianapolis: Indiana University Press, 1995); Jacob M. Landau, *The Politics of Pan-Islam: Ideology and Organization* (Oxford: Clarendon Press, 1990); Selçuk Esenbel, "Japan's Global Claim to Asia and the World of Islam: Transnational Nationalism and World Power, 1900-1945," *The American Historical Review* 109, no. 4 (2004), 140-170.

[554] The quotation comes from Pedersen's study on infrastructure building in northern Mongolia. See, Morten A. Pedersen, *Not Quite Shamans: Spirit Worlds and Political Lives in Northern Mongolia* (Ithaca, NY: Cornell Univ. Press, 2011), 45.

Tatars in mind, Zhirkov and others had the entire world. When the decision to Latinize was put to vote in the Congress, 101 voted "for" Latinization, 7 voted "against," and 9 were "impartial." For Sharaf, it was a big defeat. And Ibrahimov, perhaps sensing that the fate of the Arabic alphabet was already decreed even before the Turcology Congress, first raised his hand "for," then "against," and lastly, he abstained from voting.[555] Latinization was officially on.

III. The First Chinese Latin Alphabet: The New Dunganese Alphabet

Immediately after the Turcology Congress, Agamalioglu travelled to Moscow to join the Third Session of the Central Executive Committee of the Soviet Union, where an All-Union Central Committee of the New Turkic Alphabet (*vsesoiuznyi tsentral'nyi komitet novogo tiurkskogo alfavita*) was formed. The official seat of the committee was in Baku, but its Executive Bureau was in Moscow. Even though the decision to Latinize was taken in the First All-Union Turcology Congress, its execution in the Turkic world required solving related technical problems, foremost of which was the final shape of the Latin letters themselves and the creation of a unified alphabet for all the Turkic people.[556]

Things moved fast. The Unified New Turkic Alphabet (*unifitsirovannyi novyi tiurkskii alfavit*) was the first important step in the installation of a common informational materiality and a shared psycho-physiological process of knowledge production for all the nations in the world. The first plenum of the All-Union Central Committee of the New Turkic Alphabet was convened in Baku in June, 1927, again headed by Agamalioglu. The Unified Turkic Alphabet was created in the first plenum, and was finalized and put into practice after the Second Plenum convened in

[555] Frings, ibid., 47.

[556] *Stenograficheskii otchet pervogo plenuma vsesoiuznogo tsentral'nogo komiteta novogo tiurkskogo alfavita zasedavshego v Baku ot 3-go do 7-go iiunia 1927 goda* (Moscow: Izdanie VTsK NTA, 1927), 1.

Tashkent in 1928.[557] Agamalioglu, Chobanzade, Zhirkov, Iakovlev, and others who were present in the First Turcology Congress also joined the plenums afterwards. The letters "b, d, f, h, e, m, n, p, r, s, t, v, x, and z" did not pose any difficulty, but it was not easy to reach consensus on other letters. The Scientific Council of the New Turkic Alphabet, for instance, proposed that "c" should be used for "ç (ch)" ҷ and "ç" for "c" ҫ because the letter "c" statistically occurred more in Turko-Tatar languages, saving the labor of putting an extra tail under "c."[558] Or for "sh" (in Cyrillic, ш), there were three different proposals: the Scientific Council proposed š, Azerbaijanis proposed "ɜ" (which was Akhundzade's proposal in the 1870s), and the Kazak Republic proposed the Russian letter itself, ш.[559] Each letter of the alphabet was thus put to vote, and the Unified Turkic Alphabet was created through a collaboration between Turkic and Russian scholars, some of whom were simply trying to assert national difference, whereas others were trying to find the future alphabet for the mankind. (Fig. 7.1)

[557] Agazade and Karakashly, *Ocherk po istorii razvitiia dvizheniia novogo alfavita i ego dostizheniia* (Kazan: VTsK NTA, 1928), 87.

[558] *Stenograficheskii otchet pervogo plenuma*, 159-160.

[559] ibid., 161-162.

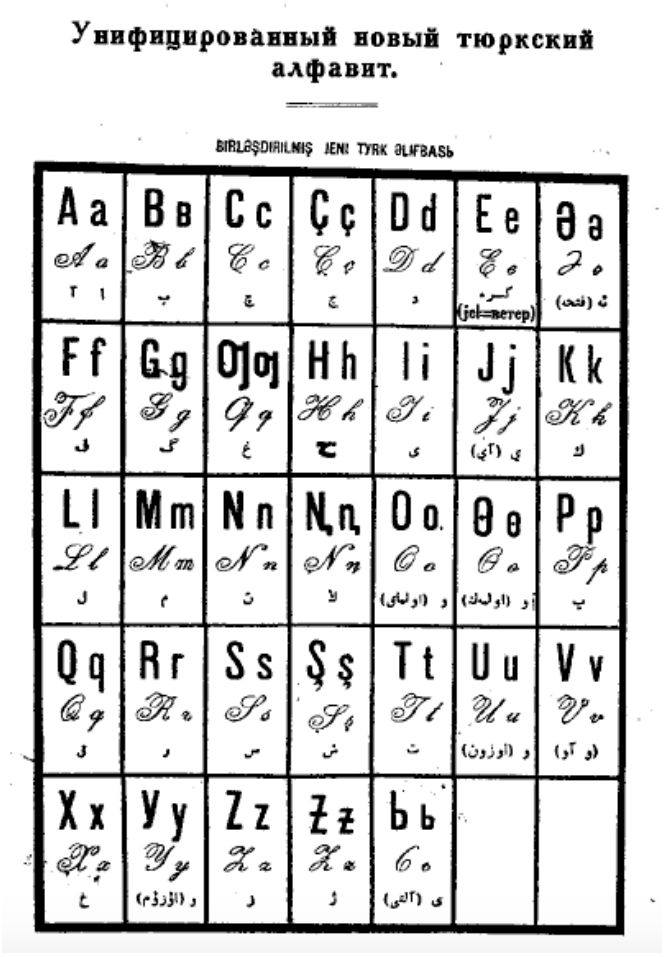

Fig. 7.1 – The Unified New Turkic Alphabet

Many scholars, Turkic and Russian alike, were aware of the implications of the Unified New Turkic Alphabet. It was not only an alphabet for the Turkic people, but an alphabet for the global future of socialism. Although some Azerbaijani intellectuals in the Third Plenum stepped away from unifying all alphabets, the Unified New Turkic Alphabet had already become the blueprint for all Turkic and non-Turkic people after the First Plenum in 1927.[560] Iakovlev was enthusiastic about this global alphabet, and believed that the Russians were going to Latinize

[560] *Stenograficheskii otchet tret'ego plenuma vsesoiuznogo tsentral'nogo komiteta novogo tiurkskogo alfavita zasedavshego v g. Kazani ot 18-go po 23-e dekabriia 1928 g.*, 68-73.

their own alphabet as well, making this alphabet the international system of writing. "That is why," noted Iakovlev, "it seems to me that the only appropriate name for this committee in the future should be 'The Committee of International Alphabet' or 'International Graphics.'"[561] From then on, the Unified New Turkic Alphabet became the basis on which all the national alphabets were created. Mongolian (Buriat and Kalmyk), Caucasian (Avarian, Darginian, Lezgian, Abkhazian, and others) and Persian (Tadjik, Ossetian, Kurdish, and others) were all Latinized based on the New Turkic Alphabet.[562] In 1930, the All-Union Central Committee of the New Turkic Alphabet changed its name to the All-Union Central Committee of the New Alphabet. The New Turkic Alphabet was now the New Alphabet for All.

Apart from a shared informational materiality that the alphabet provided, the Unified New Turkic Alphabet also helped the Central Committee expand its influence into non-USSR lands. Latinization of Tadjik, for instance, broadened the Soviet Union's informatic channels into Iran and Afghanistan. The Latinization of Kurdish was aimed more at Kurds living in Iran, Turkey, and Iraq, than the small population of Kurds in Armenia. And what proved to be the most successful of all, the Latinization of Dunganese was aimed at winning over the "revolutionary East." "Although the New Turkic Alphabet is used for small nations (*narod*), such as the Dungans," wrote Iakovlev, "we must not forget that behind that small nation, we have a great national mass in the East — behind them stands China."[563]

China was an object of literary and artistic fascination in the early years of the Soviet Union—a place of orientalist wonder, the cradle of revolution, and a center of early Soviet search

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[561] ibid., 83.

[562] I. Khansurov, *Latinizatsiia - orudie leninskoi natsional'noi politiki* (Moscow: Politizdat, 1932), 29.

[563] *Stenograficheskii otchet tret'ego plenuma*, 82. Несмотря на то, что перешли на этот алфавит такие маленькие народы, как напр., дунганы, мы не должны забывать, что за этими маленькими народами мы имеем огромные национальные массивы на Востоке, — за ними стоит Китай.

for "internationalist aesthetics."[564] Besides the Soviet artists' engagement with China, there were also Chinese students and intellectuals studying and working in Moscow from the early 1920s onwards.[565] Qu Qiubai, a leader of the Chinese Communist Party, witnessed the early years of the Bolshevik revolution in Moscow; Xiao San translated and disseminated Chinese literature in Russia; Wu Yuzhang and Lin Boqu fought against illiteracy in Vladivostok and Khabarovsk; Hu Yuzhi, the most famous Esperantist, traveled through Russia, and—rather blindly—marveled at socialist industrialization.[566] At the diplomatic level, Sun Yat-sen's Kuomintang (KMT) had established contact with the Bolsheviks earlier in 1918. In 1923, the Comintern agents were in China, while high ranking Chinese officials, such as the future leader of the party Chiang Kai-shek, were traveling to Moscow. With the support of the Comintern, KMT and the Chinese Communist Party (CCP) formed the First United Front in 1923, a strategic alliance against China's warlords that backfired when Chiang Kai-shek wiped out the communists on the streets of Shanghai in 1927.[567] The struggle between the two parties also reflected in their grammatologies. As will be explained in detail in the next chapter, the KMT supported the Phonetic Symbols (*zhuyin fuhao*) as an auxiliary tool to teach Mandarin and the characters, but the CCP favored Latinization, the revolutionary method to eliminate Chinese characters,

[564] Edward Tyerman, "The Search for Internationalist Aesthetics: Soviet Images of China, 1920-1935" (PhD Dissertation, Columbia University, 2014), 115-283.

[565] In 1925, the Moscow Sun Yat-sen University was established to strengthen the political ties between China and Russia. Miin-ling L. Yu, "Sun Yat-sen University in Moscow, 1925-1930" (PhD Dissertation, New York University, 1995).

[566] Qiubai Qu, *E xiang ji cheng* (Xian: Taibai wenyi chubanshe, 1995); Yuzhi Hu, *Mosike yinxiang ji* (Shanghai: Xin shengming shuju, 1932). For more information on the history of Chinese communists in the Soviet Union, see, Elizabeth McGuire, *Red at Heart: How Chinese Communists Fell in Love with the Russian Revolution* (New York: Oxford University Press, 2018).

[567] Pantsov, Alexander, *The Bolsheviks and the Chinese Revolution, 1919-1927* (Honolulu: University of Hawaii Press, 2000).

establish a multilingual society, and take part in the anti-imperialist informatic struggle that was taking place in the Soviet Union.

The elimination of Chinese characters indeed started with Dunganese, a vernacular speech close to northern Mandarin, which was spoken by a minority population living in Kyrgyzstan and Kazakstan. Dungans were Chinese Muslims, known as *Hui* throughout China. Dungans living in Xinjiang, the northwestern frontier of the Qing empire, had started emigrating to Russian Central Asia in 1878, when Yaqub Beg's short-lived khanate in Xinjiang (1862-1877) ended with the Qing empire's reconquest of the region.[568] According to the official census, their population in Kyrgyzstan and Kazakstan was 14,600 in 1926, and according to B. A. Vasil'ev's account, their language was a mixture of vernacular tongues spoken in Shaanxi and Gansu provinces in the northwest, with loanwords from Turkish, Arabic, Russian, and other languages.[569]

The crucial difference between Dunganese and other Chinese vernacular societies was that the former was written with an Arabic script known as *xiao'erjin* 小兒錦. *Xiao'erjin* was invented in the late Ming dynasty (1378-1644) by Chinese Muslims. The educated Chinese Muslims of the period could read in Arabic, but few could speak or write in it. By contrast, almost all of them could speak their vernacular tongue, but only a small number could read and write it. The end result was *xiao'erjin*, the first phonetic script to represent Chinese sounds using

[568] On Dungans, see, Svetlana Rimsky-Korsakoff Dyer, *Soviet Dungan Kolkhozes in the Kirghiz SSR and the Kazakh SSR* (Canberra: Faculty of Asian Studies, ANU, 1979); Svetlana Rimsky-Korsakoff Dyer, "The Superstitions and Beliefs of the Early Chinese Muslims in Russian Central Asia," *Monumenta Serica,* vol. 48 (2000), 429-510. For a history of Dungans and their contributions to literary exchange between the PRC and the Soviet Union, see, Jing Tsu, "Romanization Without Rome: China's Latin New Script and Soviet Central Asia," in *Asia Inside Out: Connected Places,* ed. Eric Tagliocozzo, Helen F. Siu, Peter C. Perdue (Cambridge: Harvard University Press, 2015), 342-348.

[569] B. A. Vasil'ev, "Dungane," *Kul'tura i pis'mennost' vostoka*, no. 7-8 (1931), 141-144.

the Arabic alphabet.[570] (Fig. 7.2) The rate of literacy in *xiao'erjin* was arguably never very high in China, nor among the Dungans who migrated to Russian Central Asia, but it proved to be a convenient starting point for Latinizing Chinese. The Latinization of the Dunganese Arabic Script was the first Latinization attempt in the Soviet Union undertaken for Chinese languages, and it is the hitherto invisible link between the Latinization of Arabic scripts in Western and Central Asia and the Latinization of Chinese. The first Chinese Latin Alphabet was a direct copy of the Unified New Turkic Alphabet, the signs of which were invented to Latinize the Turco-Muslim Arabic script, which was almost entirely the same with the extant Chinese Muslim Arabic Script, *xiao'erjin*. Neither the missionary Romanization of Chinese languages nor the National Phonetic Alphabet had anything to do with the first Chinese Latin Alphabet. It was instead the product of a Eurasian history written in the Arabic script, of which China was one part.

[570] Jonathan N. Lipman, *Familial Strangers: A History of Muslims in Northwest China* (Seattle: University of Washingtong Press, 1997), 50-51.

Fig. 7.2 – An Arabic treatise (on the left) translated into local speech using *xiao'erjin*, and published in Tashkent, 1899 (Image taken from Wikipedia, https://en.wikipedia.org/wiki/Xiao'erjing#/media/File:Book-in-Xiaoerjing.png)

The first proposal to Latinize Dunganese was drafted by the Kyrgyz Committee of the New Alphabet, and the second one by Dungan students in Tashkent, Iasyr Shivaza, Juma Abdullin, Kh. Ibragimov, Iu. Ianshansin, and others, who used the Unified New Turkic Alphabet as their model, and added a few more signs that resembled Cyrillic letters. In 1928, these students even printed the first Dunganese newspaper *May 1*.[571] In order to finish the project, Yakub Zhon, the director of the only Dungan school in Frunze, Kyrgyzstan, was summoned to Baku. As he noted in a speech at the All-Union Central Committee of the New Turkic Alphabet, the New Dunganese Alphabet was based on the Arabic script in use, not on other phoneticization projects

[571] I. I. Iusupov, *Sovietskie Dungane v period stroitel'stva sotsializma* (Frunze: Ilim, 1977), 149.

of Chinese languages.[572] As a matter of fact, Dungan students studying in Tashkent in the 1920s, including the Dungan poet Iasyr Shivaza, had started reforming the Arabic script before they started working on Latinizing.[573] The slight differences between the Turco-Muslim Arabic Script and the Dunganese Arabic Script may be seen in the image below, which corresponded to the slight differences between the Unified New Turkic Alphabet and the first Dunganese Latin Alphabet. With the support of one of the leading Sinologists Evgenii Polivanov, the first textbooks and literature in the Dunganese Latin Alphabet were printed by the above-mentioned students. In the following years, while the Dunganese Latin Alphabet was undergoing some changes, it evolved into a greater project to Latinize Chinese. (Fig. 7.3)

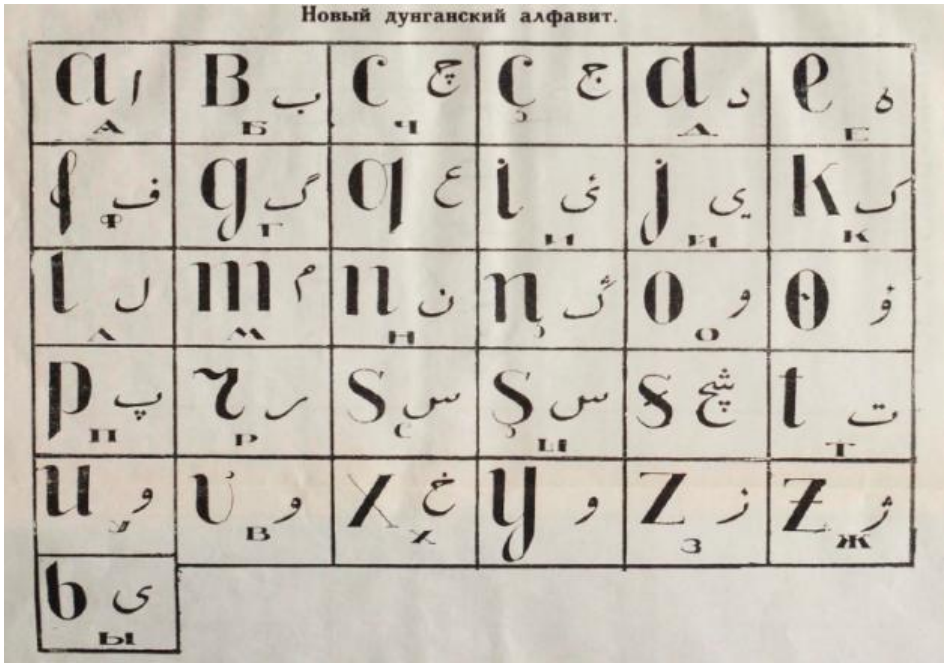

Fig. 7.3 – The New Dunganese Alphabet, 1928[574]

[572] B. Chobanzade, "Itogi unifikatsii alfavitov tiurko-tatarskikh narodov," *Kul'tura i pis'mennost' vostoka*, no. 3, (1928), 24-26.

[573] Svetlana Rimsky-Korsakoff Dyer, *Iasyr Shivaza: The Life and Works of a Soviet Dungan Poet* (Frankfurt am Main: Peter Lang, 1991), 241.

[574] Chobanzade, "Itogi unifikatsii alfavitov tiurko-tatarskikh narodov," 24-25.

The Latinization of Chinese and Dunganese were parallel developments, and the linguists running the projects were in conversation with each other. The Latinization of Dunganese was run by Vasilii M. Alekseev at the Institute of Oriental Studies of the Academy of Sciences, aided by Lev Shcherba, Evgenii Polivanov, and Aleksandr Dragunov; and the Latinization of Chinese started at the end of 1928 at the Institute for Scientific Research on China (*nauchno-issledovatel'skii institut po Kitaiu*) under the Comintern. When Russian scholars began working on the Latinization of Dunganese, they were aware of the need to change the script according to the demands of mainland China. Some of the letters used by the Unified New Turkic Alphabet (ç, ŋ, ş, ƶ, ɵ, ь, ɔ̨) required special matrices for typographical purposes, and special typewriters. Both the Dungan alphabet and the Chinese Latin Alphabet were modified to fit the limitations of writing technologies, as the next chapter will explain in detail.[575]

Before following the Chinese Latin Alphabet into China and witnessing the alternative information society it inspired, I would like finish this chapter on Latinization across Eurasia with one of the rare examples of Latinized/Romanized literary production that embodied the spirit of internationalism. As Latinized letters gained momentum across Eurasia, representing the new stage of intellectual productivity, and the new medium that increased the velocity of knowledge circulation between hitherto barely-communicating nations, it also engendered an internationalist mode of aesthetics, and sparked hope for an alternative literary vision that could allow disparate linguistic communities to be mutually-constitutive of each other. This vision was captured perhaps best by Nazim Hikmet, a communist Turkish poet, who incorporated China into his avant-garde literary imagination.

[575] For a comparison of the Dungan and the Chinese Latin alphabets, see: B. A. Vasil'ev, ibid., 151.

IV. Nazim Hikmet, Xiao San, and the Technologies of Literary Internationalism

In 1923, Nazim Hikmet, a young Turkish poet, composed a poem in Moscow, called "To Be Mechanized" (*Makinalaşmak*). Arguably the most controversial poet in Turkish history, Nazim Hikmet (1902-1963) was originally from Salonica. After a brief stint in the Ottoman Navy, he took off to Moscow in 1922 during the Turkish War of Independence (1919-1922). From 1922 to 1924, he studied at the Communist University of the Toilers of the East (KUTV) in Moscow, then went back to the newly established Republic of Turkey. When the Turkish courts started persecuting everyone who could be a potential threat to the new regime, and especially targeted communist journals that Nazim Hikmet was publishing in, he escaped to Moscow in 1925, and stayed there until 1928. From 1929 to 1938, Nazim Hikmet was in and out of prisons countless times, and he then spent the next twelve years in prisons across Turkey until 1950. A year after his release, when he was forced to enroll in the army, he fled to the Soviet Union. Stripped off his Turkish citizenship, he stayed in the Soviet Union until his death in 1963.[576]

Nazim Hikmet was aware of the linguistic changes taking place during the turbulent years of his youth. The omnipresent technologies of communication, intensifying debates about the future of the script, purification, simplification, and vernacularization in national languages that gave birth to new conceptions of the interaction between language, technology, script, and the human. Nazim Hikmet's "To Be Mechanized" was a futuristic response to the techno-human of the age.

trrrrum,
trrrrum,
trrrrum!
trak tiki tak!
Makinalaşmak

trrrrum,
trrrrum,
trrrrum!
trak tiki tak!
I want to be

[576] For a biography of Nazim Hikmet, see, Saime Göksu and Edward Timms, *Romantic Communist: The Life and Work of Nazım Hikmet* (London: Hurst & Co., 1999).

istiyorum! Mechanized!

As Nergis Erturk notes in her analysis of the poem, Nazim Hikmet's poetically mechanized opening lines "trrrrrum, trrrrum, trrrrrum, trak tiki tak" was an affirmation of the death of language as mere speech and a tribute to it as machinery, within which meaning was produced through a combination of meaningless letters.[577] The onomatopoeic constellation of letters to represent the sound of a running motor (*trrrrrum*) or the regular, round-the-clock rhythm of a working machine (*trak tiki tak, trak tiki tak*) was the ideal that Nazim Hikmet strived for in his own desire to become the machine: "I want to be / Mechanized!" That mechanization he yearned for also anticipated a death of the organic body, a futurist imagination of an integration of the machine and the human:

Beynimden etimden iskeletimden
geliyor bu!
Her dinamoyu
altıma almak için
çıldırıyorum!
Tükrüklü dilim bakır telleri yalıyor,
damarlarımda kovalıyor
oto-direzinler lokomotifleri!
trrrrum,
trrrrum,
trrrrum,
trak tiki tak
Makinalaşmak
istiyorum!
Mutlak buna bir çare bulacağım
ve ben ancak bahtiyar olacağım
karnıma bir türbin oturtup
kuyruğuma çift uskuru taktığım gün!

It is coming
from my brain my flesh my skeleton!
I'm going insane
to take every generator
under myself!
My salivary tongue is licking the copper wires,
and in my veins
speeders are chasing after locomotives!
trrrrum,
trrrrum,
trrrrum,
trak tiki tak
I want to be
Mechanized!
I will definitely find a solution to this
and I will reach happiness the day
when I place a turbine in my belly
and attach a double propeller to my tail![578]

[577] Nergis Erturk, ibid., 159-181.

[578] Nazim Hikmet wrote this poem in 1923, presumably in Arabic letters, in Moscow, but published it for the first time in 1929 in Istanbul, using Latin letters. Nazım Hikmet, *835 Satır* (İstanbul: İstanbul Milliyet Matbaası, 1929), 15-16. I tried to remain faithful to the typographical form of the poem in which "trrrrum / trrrrum / trrrrum / trak tiki tak / I want to be Mechanized" was printed with bigger fonts. The translation belongs to me.

"To Be Mechanized" was the first Turkish poem to follow Russian futurism's craving for mechanical precision and a union of the human and the machine. Nazim Hikmet's experimental typography served to amplify the novel techno-spatial construction of the page. Nazim Hikmet was describing a bio-mechanical man, a techno-human, who could transcend his own limits through an integration with industrial machinery. The speeders and locomotives in his veins, his tongue licking copper wires, a turbine in his belly, and a double propeller in his back to reach "happiness" echo Donna Haraways' cyborg subjects, "creatures simultaneously animal and machine, who populate worlds ambiguously natural and crafted."[579] A few decades before the cybernetic revolution, Nazim Hikmet was embracing the techno-human subject who could transcend cultural and national boundaries.

Nazim Hikmet penned "To Be Mechanized" in the midst of the fascination with and theorization of the techno-human. Mayakovsky's Left Front of the Arts (*Lef*), which sought after an internationalist aesthetics for all the working classes in the world, had a direct impact on Nazim Hikmet's futurist poetry, of which "To Be Mechanized" is one of the rare examples. *Lef* artists embraced Gastev's desire for word-economy, speed, simplicity, exactness, and unambiguity in the 1920s. Boris Arbatov, a member of *Lef*, even praised Gastev's poetry for its novelty.[580] In an age when language itself was mechanized, a seamless Gastevian integration of

[579] Donna Haraway, "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century," in *Simians, Cyborgs and Women: The Reinvention of Nature* (New York: Routledge, 1991), 149.

[580] B. Arbatov, "Aleksei Gastev, 'Pachka Orderov,' Riga 1921 g." *Lef* 1, 1923, 243-245. Gastev titled his poems as "orders," his economy of language invaded even the grammatical territories, and meaning was as far away from ambiguity as possible. In addition, he also invented neologisms such as "cerebral-machines," "cine-eyes," "electro-nerves," and "arterio-pumps." The crude content, truncated form, grammatical surgery, and the biomechanical neologisms called for a new form of aesthetics, an innovative use of letters, words, and grammar to fuel the mechanized literary mind. For the relationship between NOT and *Lef* writers, see Devin Fore, "The Operative Word in Soviet Factography," *October* 118 (2006): 95-131

the machine (i.e., language) and the organic human promised a future that could be shared by all artists, regardless of cultural and national differences.[581]

The desire for a bio-mechanical body and a techno-human language was imbued with Nazim Hikmet and the Russian futurists' political vision for communist literary internationalism. Nazim Hikmet composed "To Be Mechanized" in 1923 (probably in Arabic letters) but published it for the first time in his book of poetry, *835 Lines* (*835 Satır*), in 1929 in Latin letters, exactly when the Turkish Republic undertook the decision to Latinize the Arabic alphabet. *835 Lines* was a fierce attack on the old culture, and part of the literary movement called "Down with Icons" (*Putları Kırıyoruz*), which aimed to define a new paradigm for Turkish literary production. Nazim Hikmet had the loudest voice in the movement, and *835 Lines* was his manifesto in content and form. As opposed to the newly established Republic of Turkey's pedantic efforts to create a national language that was distinctly "Turkish," Nazim Hikmet's political vision of a mechanized future with a mechanized body and language yearned for a poetical machinery that transcended the boundaries of the nation-state while still remaining vernacular.[582] He was always in defense of writing with a simplified language that could be translated into other languages without sacrificing meaning. For him, the inability of the "old icons of literature" to be translated into foreign languages was the main indicator of the need to install a new culture of literary production, simultaneously vernacular and international.[583] Nazim Hikmet never wrote openly in defense of Latinization, but given his use of the Latin alphabet even when writing his personal

[581] On the development of Russian Futurism, and the divide between the trans-rationalists and Lef, see Anna Lawton, *Russian Futurism through Its Manifestoes, 1912-1928* (Ithaca: Cornell University Press, 1988).

[582] His devotion to vernacularism and internationalism was one of the reasons why he was embraced by the Azerbaijani literary circles in the 1920s. Aslan Kavlak, "*Bakü'ye Gidiyorum Ay Balam": Nazım Hikmet'in Azerbaycan'daki İzleri (1921-1963)* (İstanbul: Yapı Kredi Yayınları, 2009 [2007]), 19-121.

[583] Zafer Toprak, "Nazım Hikmet'in Putları Kırıyoruz Kampanyası ve Yeni Edebiyat," *Toplumsal Tarih,* no. 261 (2015), 36.

letters and diaries (in contrast to his peers who continued using the Arabic script in their personal correspondences), and given the significance of the movement when he was in Moscow, it would not be wrong to claim that for Nazim Hikmet—as for the Chinese Latinists—the Latin alphabet served the dual goals of internationalism and vernacularism. His personal life and poetry was also a testimony to vernacular internationalism. One of his closest friends in Moscow was the Chinese communist Xiao San, also known as Emi Siao—a leading figure in translating Chinese literature into Russian, the translator of the socialist song *L'internationale* into Chinese, and the biggest name in the Chinese Latinization Movement, whose crucial role in it will be explained more in the next chapter.

In 1929, a year after his return to Turkey, Nazim Hikmet composed one of his landmark poems in Turkish, "Giaconda and Si-Ya-U" (*Jokond ile Si-Ya-U*), to honor Xiao San's alleged death in Shanghai under Chiang Kai-shek. Also partially published in *835 Lines*, "Giaconda and Si-Ya-U" is a story of sexual and political liberation and love between Xiao San (transribed as Si-Ya-U) and Giaconda from Leonardo Da Vinci's famous painting, *Mona Lisa.* The poem starts with Giaconda in the Louvre Museum in 1924. She is bored by history, by the museum, and by being a mere historical specimen in the museum with a fake smile destined to remain on her face until eternity - "a smile that is even more famous than Florence."[584] Then she sees Si-Ya-U, a Chinese "who doesn't look at all like the Chinese with the queues."[585] She falls in love with Si-Ya-U, and starts forgetting the names of the Renaissance masters of art. Giaconda now wants to see "the black oil paintings of birds and flowers / dripping / from the thin and long reed brushes /

[584] Nazim Hikmet, *Jokond ile Si-Ya-U, Taranta Babu'ya Mektuplar, Benerci Kendini Niçin Öldürdü?* (Ankara: Dost Yayınları, 1965), 5. All translations belong to me. "Floransa'dan daha meşhurdur tebessümüm."

[585] ibid., 7. "Başı perçemli Çinlilere benzer yeri yok."

of the Chinese painters with slanted eyes."[586] Then one day, the French authorities expel Si-Ya-U out of France, and he goes back to China to join the socialist fight. Depressed and longing for her Chinese love, Giaconda talks to the narrator of the story, and the narrator helps her break free from Louvre to travel to China in search of Si-Ya-U. She (still in a frame) gets on a plane together with the narrator, and they fly across Africa and the Indian Ocean before reaching the Sea of China. Giaconda jumps from the plane and lands on a British ship on its way to Shanghai. At last, she arrives in the city. She sees her love from a distance, and just when she is about to approach, Chiang Kai-shek's "executioner" (*cellat*) cuts off Si-Ya-U's head. "It was such a day of death / that Giaconda from Florence lost in Shanghai / her smile that is even more famous than Florence."[587] With the fake smile, a reminder of patriarchal authority, erased from her face, Giaconda steps out of her frame, and joins the revolutionary struggle in China. Finally, the French authorities capture Giaconda and burn her on the stake. "Giaconda was painted red with flames / She laughed with a smile coming from her heart / Giaconda burned as she was laughing."[588]

As Katerina Clark notes, Nazim Hikmet's poem was a work of "red cosmopolitanism" *par excellence*.[589] Giaconda, an apolitical figure who is famous for a smile that she does not even like, is the object of a Western patriarchal culture. She falls in love with a Chinese revolutionary,

[586] ibid. 9, Görmek istiyorum / Çekik gözlü Çin nakkaşlarının / ince uzun kamış fırçalarından / damlıyan / siyah suluboya kuş ve çiçek resimlerini.

[587] ibid., 26. Ve işte böyle bir ölüm günü / Şang-Hay'da kaybetti Floransalı Jokond / Floransadan daha meşhur olan tebessümünü.

[588] ibid., 29-30. Kıp kırmızı bir alevle boyandı Jokond / Güldü içten gelen bir tebessümle / gülerek yandı Jokond

[589] Katerina Clark refers to this very poem in coining the term "red cosmopolitanism." See, Katerina Clark, "European and Russian Cultural Interactions with Turkey: 1910-1930s." Nazim Hikmet wrote two more poems that spoke to his internationalist vision: "Why did Banerjee Kill Himself?" (*Benerci Kendini Niçin Öldürdü?*) and "Letters to Taranta Babu" (*Taranta Babu'ya Mektuplar*).

who does not fit the orientalist representations of China as backward — instead, it has a unique and valuable culture, and a revolutionary potential. A Turkish narrator helps her escape from the museum, and they get on a plane, admiring the technological advancements of the day. They fly over the colonized Africa and the Indian Ocean, mapping out the future revolutionary spaces. When Giaconda finally reaches Shanghai, she loses her love at the hands of an executioner, becomes a true communist revolutionary, and sacrifices herself on the stake with a smile that truly comes from her heart. Giaconda is finally free.

"Giaconda and Si-Ya-U" retained certain similarities to "To Be Mechanized." This was a long poem that had an elaborate story line with multiple protagonists, geographies, and technologies. Nazim Hikmet used multiple narratives (Giaconda, the narrator, and a sailor in the British ship all spoke with their own voices) to decenter an I-narrative, and multiple geographies to decenter Eurocentrism. In "Giaconda and Si-Ya-U," Nazim Hikmet did not turn himself into a machine, but indeed incorporated the new techniques and technologies of representation into his authorial vision. The story, first of all, unfolded in a temporally diachronic and globally synchronic progression of scenes that the reader could "watch" as if watching montaged scenes from a movie. This cinematographic approach was not surprising given Nazim Hikmet's admiration for Meyerhold and Sergei Eisenstein, and his personal friendship with Sergei Tret'iakov, who also helped Nazim Hikmet translate one of his poems, dedicated to Meyerhold, into Russian.[590] Nazim wrote each scene in the story as if the figures were acting on a stage, or in front of a camera. Indeed, one scene was most probably informed by the documentary film *Shanghai Document (Shankhaiskii Dokument)*, directed by Yakob Bilokh and released in 1928.

[590] Göksu and Timms, ibid.

(Fig. 7.4) When Giaconda reaches Shanghai, right before she sees Si-Ya-U, she has an ethnographic moment on the streets:

The Chinese juggler
Lİ
is screaming at the top of his lungs
His hand that looks like a yellow, skinny spider
is throwing the thin and long knives in the air
And again
one more
one more
one more
five
one more.
The knives bolt and flow one after another
in the air, as they draw circles with thunder.

Bağırıyor avaz avaz
Çinli hokkabaz
Lİ.
Sarı sıska bir örümceğe benziyen eli
fırlatıyor havalara ince uzun bıçakları:
İşte bir
bir daha
bir daha
bir daha
beş
bir daha.
Havalarda şimşekli daireler çizerek
bıçaklar birbiri ardınca fırlayıp akıyor.

Fig. 7.4 – *"The Street Jugglers Serve the Poor* (bednotu obsluzhivaiut ulichnye fokusniki)*," Shanghai Document,* 1928, 12:49.

Bilokh's *Shanghai Document* represented itself as an eyewitness to China after the communist defeat in 1927, which provided a convenient decorative setting for the imagined death of Xiao San. Nazim Hikmet translated (or trans-mediated) the image of China, captured with cinematographic technologies and techniques of camera and montage, into his poem in Turkish. What is more significant, however, is that he brought in the new vision provided by the technologies of representation into his communist internationalist narrative style, and through them, envisioned a world without a center — a world that witnessed fascist brutalism (Si-Ya-U's rolling head), but that was still full of hope with what was offered by technology (the planes in the air) and human agency (Giaconda out of her frames).

Nazim Hikmet's poem circulated only in Turkey, and it never reached Xiao San. As a matter of fact, the two friends did not meet again until 1951, when a chance encounter in Berlin brought them together for the first time since Moscow. After the serendipitous reunion, Xiao San immediately invited Nazim Hikmet to Beijing to partake in the Asia-Pacific Region Peace Conference in 1952. Convened during the Korean War, the conference especially welcomed Nazim Hikmet, for Turkey was fighting against China and North Korea on the side of the United States. Nazim Hikmet represented the voice of a Turkish dissident who took refuge in the USSR, and in his speech, he condemned Turkey for being an American colony.[591] The same year, his poems were translated from Russian into Chinese for the first time, and in the following years, more translations followed.[592] After a short stay in Beijing, Nazim Hikmet went back to Moscow, and the two friends probably never met again.

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[591] "Tuerqi daibiao xi-ke-mei-te de fayan," *Yazhou ji taipingyang quyu heping huiyi gongbao*, no. 5, Oct. 7 (1952), 70-71

[592] In 1952, the first collection of Nazim Hikmet's poems was published in Beijing: *Xikemeite shixuan* (Beijing: Renmin wenxue chubanshe, 1952). In the following years, the Russian translations of Nazim Hikmet's works were also translated into Chinese. Nazim Hikmet (Xikemeite), *Tuerqi de gushi*, trans. Wu Meng (Shanghai: Pingmin chubanshe, 1953); Nazim Hikmet (Xikemeite), *Aiqing de chuanshuo: xiju shi*, trans. Chen Yansheng and Wu

Nazim Hikmet and Xiao San's decades-long friendship is a glimpse into the red cosmopolitanism that started in the early Soviet Union. Red cosmopolitans were both vernacularists and internationalists, a seeming contradiction that they managed to overcome through imagining a common socialist and techno-human existence that came before cultural differences. Nazim Hikmet and Xiao San stepped out of the dichotomous world order of the colonizer and the colonized, and imagined a new internationalism that inspired literary imagination, and allowed an easier flow of information between hitherto colonized spaces. It was in the 1920s, when Xiao San and Nazim Hikmet met for the first time, that the seeds of literary internationalism were planted, and their search for an internationalism that could transcend cultural boundaries, internationally "install" a new culture of intellectual labor, and use the new technologies of representation to envision new global spaces and political futures was intimately connected to the "Revolution in the East" — Latinization. A common Latin alphabet was going to provide the means to vernacularize and internationalize all national languages, and create a socialist mode of translingual existence. Just like Nazim Hikmet's imagined world without a center in "Giaconda and Si-Ya-U," the Latin alphabet was going to knit the nations into one another, and form a socialist network through letters.

Conclusion: Death of Internationalism in the Soviet Union

Latinization of Chinese was part of an anti-colonial Eurasian informatic moment that sought to change the medium of producing knowledge about the colonized East, to create a common

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Chunqiu (Shanghai: Pingmin chubanshe, 1955); Nazim Hikmet (Xikemeite) and Anna Begicheva (Biejiqiewa), *Ta yongyuan huozhe*, trans. Lei Nan (Beijing: Zhongguo dianying chubanshe, 1957). In 1960, a selection of Turkish poetry was translated into Chinese, including the poems of Nazim Hikmet, Oktay Rifat, and Melih Cevdet Anday, see, Xikemeite, *Tuerqi shi xuan* (Shanghai: Shanghai wenyi chubanshe, 1960). Also, a selection of poems from socialist writers of the world was published in 1954, in which Nazim Hikmet's "Alioglu Ahmet" (a poem written to an imagined Turkish soldier fighting on the American side against China in the Korean War) was printed as the first poem. Xikemeite, *Wushi duo fan honghua,* trans. Yuan Shuipai (Shanghai: Pingmin chubanshe, 1954).

psycho-physiological interface with information, and to facilitate the flow of information across different linguistic orders. When Arabic script reform first started in the 1850s in the Russian Caucasus and the Ottoman empire, it was for the entire Turco-Persian-Arabic world of Islam. By the turn of the century, the movement became detrimental for a Pan-Islamist/Turkist cause championed by Ismail Gasprisnkii in the Crimea. In the 1920s, the vernacularist and nationalist tendencies of the script reformers were welcomed by the USSR in the latter's effort to create a union of nations. Fueled by a futurist and scientific desire to mechanize and optimize the integration between man and machine, and an internationalist one to disseminate revolutionary ideas across borders, Latinists were the agents of the "revolution in the East." Latinization was indeed the first step towards creating a global socialist network of nations.

The movement did not last long. As Michael G. Smith puts it, "the multiplicity of languages and cultures in the Soviet Union, once heralded as an enriching Soviet experience, was turning out to be less of a blessing, more of a curse, especially for the non-Russian peoples themselves."[593] The simultaneous use of the Cyrillic alphabet in bureaucracy and administration, and the Latin alphabet in education and literature caused informatic confusion and communicative inefficiency. But it was Stalin's politics of repression, not managerial inefficiencies, that brought Latinization to an end in 1938.

The New Alphabet for all nationalities was the beginning of the end. In 1938, shortly after Europe plunged into war, most of the Latinized national languages were Cyrillized. The years of labor put into inventing a Latin alphabet was destroyed almost overnight by the simple creation of a Cyrillic equivalent for each Latin sign.[594] Furthermore, the politics of Cyrillization was

[593] Smith, ibid., 142.

[594] Akademiia Nauk SSSR Institut Iazykovaniia, *Voprosy sovershenstvovaniia alfavitov tiurkshikh iazykov SSSR* (Moscow: Izdatel'stvo Nauka, 1972), 40 and 155.

significantly different from Latinization. The Cyrillic letters for Turkic languages showed variations even if the phonemes were the same, for Stalin aimed to put an end to a potential unity between Turkic nations. For example, in Azeri and Turkmen, the same phoneme /dʒ/ (prononced as 'j' as in 'jump,' designated by 'ç' in the Unified Turkish Alphabet) was given the sign Ч in Azeri and Ҷ in Turkmen. Instead of a decentralized network of nations that the Latin alphabet strove for, the Cyrillic alphabet signaled a centralization in which each nation was directly connected to the state rather than to other nations. The death of Latin letters also anticipated the death of postcolonial Turcology. Samoilovich, Polivanov, Chobanzade, Tagizade, Baitursun, Tiuriakulov and dozens of other Turcologists and philologists were all executed starting in 1937 due to false charges of Turkish or Japanese espionage.[595] Literary internationalism and the search for an alternative transnational information society came to an abrupt end.

During its brief life, Latinization made an indelible mark on the Chinese history of information and language. The New Dunganese Alphabet transformed into the Chinese Latin Alphabet in 1931 after careful deliberations, and it was implemented in the Far Eastern USSR where the number of Chinese immigrants was the largest. In the following years, it also entered the Republic of China with a promise to represent each local speech, a project that may remind us of the vernacular multilingualism of the early twentieth century. Over the course of a decade, as the next chapter will show, the Chinese Latin Alphabet offered an alternative way to encode modernity in China.

[595] F. D. Ashnin, V. M. Allatov, D. M. Nasilov, *Repressirovannaia Tiurkologiia* (Moscow: Izdatel'skaia firma "Vostochnaia Literatura" RAN, 2002).

Chapter 8

Alternative Information Societies: The Chinese Latin Alphabet, Phonetic Symbols, and Vernaculars, 1930-1937

In the 1930s, there were two competing phonetic scripts for China. One was the Chinese Latin Alphabet, known as New Writing or *Sin Wenz* 新文字, the origins of which filled the pages of the previous chapter. The second one was the National Phonetic Alphabet (*zhuyin zimu*), commonly known as *bopomofo*, which was invented in 1913 by Chinese intellectuals, and officially adopted by the KMT in 1930 as "Phonetic Symbols" (*zhuyin fuhao*) to aid the teaching of Chinese characters pronounced in Mandarin, as I have explained in the second chapter. In 1932, the KMT turned it into a system exclusively for Beijing Mandarin. Graphically and ideologically, as the readers will recall from earlier chapters, the two alphabets were as different as they could possibly get:

Chinese Latin Alphabet / *Sin Wenz*:

A B C Ch D E F G I J K L M N Ng O P R Rh S Sh T U W X Y Z Zh

Phonetic Symbols (*zhuyin fuhao*) / *bopomofo*:

ㄅㄆㄇㄈㄉㄊㄋㄍㄎㄏㄐㄑㄒㄓㄔㄕㄖㄗㄘㄙㄧㄨㄩㄚㄛㄜㄝㄞㄟㄠㄡㄢㄣㄤㄥㄦ

This chapter explains the politics of representation that each of these linguistic infrastructures allowed or imposed within the politicized environment of the 1930s. As opposed to earlier periods, the 1930s witnessed a turn in Chinese grammatology and information politics. As I have explained in the first five chapters, script engineering until the 1930s was a means to increase intellectual productivity and optimize knowledge work. During the 1930s, however, as the KMT began to form its communication network for constructing a party-state and nation, the purpose of script engineering changed as well. In technical terms, a phonetic alphabet (Phonetic Symbols or CLA) provided a channel that established the shortest and fastest communication route

between a political party (KMT or CCP) and a largely illiterate population (an imagined Chinese nation). As such, a phonetic alphabet was a medium to increase the signal-to-noise ratio in the communication channels to get the party's political message across as fast and clearly as possible. The psychological and propaganda warfare that raged during this and the following decade sidelined the earlier efforts to come to terms with a modern knowledge economy, as ideological commitment to the party came before industrial knowledge production, literacy became a core concern for propaganda purposes, and a phonetic script defined the medium of transmitting political messages across.

The 1930s and 1940s were the decades of intensified party-state-building. After the KMT's communist purge in 1927, the Nanjing decade (1928-1938) witnessed a new wave of politics with fascist aspirations, the outcome of which was the New Life Movement that made a renewed emphasis on "nativeness." In grammatology, the ideological emphasis on "native culture" (*guyou wenhua*) put pressure on maintaining the Chinese characters as they were. Even the project to simplify Chinese characters could not escape native persecution, and came to an abrupt end in 1936, as I explained in the fifth chapter. Yet, the emphasis on nativeness did not solve the problem of education and linguistic unification for the KMT—Chinese characters were still too difficult to learn. How was it possible to reconcile the native culture of information with the modern need for speed?

Phonetic Symbols. The alphabet had almost everything the KMT could ask for. Its phonetic quality made it a strong candidate to teach the pronunciation of Mandarin, the form of its signs was not a betrayal to native culture, and its "auxiliary" identity made it an ally to keep the nativeness embedded in characters, while expediting the process of producing and consuming information. Plus, with the raging propaganda warfare, it opened the fastest, easiest, and safest

channel between the party and the people—it was the perfect "code" to engineer a nativist network.

Yet, it was not the only one. The Chinese Latin Alphabet was the contender to Phonetic Symbols, and its popularity was growing exponentially in the 1930s. The core of the dispute between the two alphabets was not graphics, but their politics to represent speech(es). Phonetic Symbols stood for only one vernacular, that of Beijing Mandarin. As I have noted in the second chapter, even in 1913, when the mother of Phonetic Symbols, the National Phonetic Alphabet, was first invented, the number of syllabic signs that it was supposed to contain was an issue that struck the heart of linguistic justice and representation. Depending on the number of signs and the phonetic values assigned to them, the National Phonetic Alphabet could either allow representation to more speeches or cripple the infrastructural possibilities of that representation. In 1930, when the KMT officially implemented the use of "Phonetic Symbols," it decided on the latter. Using Phonetic Symbols to write non-Mandarin vernacular languages, as I noted in the Introduction, was like writing English with 15 letters.

This chapter takes the history of vernaculars from where I have left in the second chapter. As the readers will recall, the first "national pronunciation" invented for Chinese characters in 1913 was not intelligible to any one, for it was a mix of northern and southern pronunciations. This unintelligibility was an extension of competing vernacularisms in China. And when the Preparatory Commission for the Unification of National Language invented "new national pronunciation" on the basis of Beijing Mandarin in 1926, the tension between monolingualism and multilingualism did not simply come to an end. Mutually incomprehensible vernacular languages were still there, and most were devoid of any means of material representation.

That is where the Chinese Latin Alphabet presented itself as a new infrastructural alternative. The Chinese Latin Alphabet claimed to have the material power and the political intention to represent non-Mandarin vernaculars as well, and hence its popularity. As such, the Chinese Latin Alphabet was very similar to the nineteenth-century missionary movement to write regional vernaculars in the Roman Alphabet, and to the turn-of-the-century Chinese multilingual vernacularism that sought to invent an all-inclusive National Alphabet. What set the project apart from the earlier examples was its techno-political root in the socialism and internationalism of the 1920s. The project of Chinese Latinization, in other words, was an appropriation of the USSR's "affirmative action" policies of the 1920s and early-1930s to render strength to the vernacularist movements that had been present in China at least since the nineteenth century. And there lay the difference between the CLA and the Phonetic Symbols. For the KMT's goal to invent a national language, vernaculars were just an obstacle that stood in the way of linguistic unification; they were the source of linguistic cacophony. For the Latinists, on the other hand, vernaculars were an end in themselves. They were the distinct components of a Chinese symphony.

This chapter is on the interface between scripts, vernacular languages, and political parties in the 1930s, when the KMT was trying to build a party-state. I would like to suggest that communication engineering stood at the center of state-building in China. The KMT started engineering its own communication network through Phonetic Symbols in 1930, with the promulgation of "The Method to Promote Phonetic Symbols in Each Province, City, and District." On the other hand, as the Chinese Latin Alphabet's socialist, internationalist, and vernacularist politics attracted a growing population in the 1930s, it posed a grave challenge to the security over communication channels that the KMT was eager to maintain. What Manuel

Castells noted for the post-industrial "network society" was indeed true for China in the 1930s: "If power is exercised by programming and switching networks, counterpower, the deliberate attempt to change power relationships, is enacted by reprogramming networks around alternative interests and values, and/or disrupting the dominant switches while switching networks of resistance and social change."[596] The Chinese Latin Alphabet was the Chinese left-wing intellectuals' attempt to change the power relationships that were engineered and sought to be maintained through Phonetic Symbols under the KMT.

The first section of this chapter explains how the New Dunganese Alphabet turned into the Chinese Latin Alphabet in the Soviet Union from 1928 to 1931. As Chinese and Russian Latinists were working on engineering the Chinese Latin Alphabet, they were part of two separate worlds. On the one hand, they were closely following the grammatological developments in China, the greatest of which was the short-lived invention of a Chinese Roman Alphabet, known as *Gwoyeu Romatzyh* (GR), in 1927. The invention of GR had nothing to do with the Latinization Movement in the USSR; instead it was an extension of the Chinese phoneticization movement that was developing since the turn of the century. GR was a Romanized version of the National Phonetic Alphabet, representing Beijing Mandarin. The first Chinese Latin Alphabet that Qu Qiubai invented in 1929 in fact owed more to the alphabetical signs of GR than the New Dunganese Alphabet, which turned out to be a problem for the Soviet linguists, who endeavored to bring the Chinese Latin Alphabet closer to the Unified Alphabet based on the Unified New Turkic Alphabet, of which the New Dunganese Alphabet was a direct outcome. The final product, ratified in Vladivostok in 1931, was indeed a mix of both the New Dunganese Alphabet and GR.

[596] Manuel Castells, *Communication Power* (Oxford: Oxford University Press, 2009), 430-431.

The second section of this chapter examines the KMT's intention to engineer communication through Phonetic Symbols. In 1930, the party decided to put GR on the shelf, and instead make Phonetic Symbols the medium to render Beijing Mandarin as the national language. I would like to place the KMT's decision within the context of a larger propaganda warfare, which started right after Chiang Kai-shek's communist purge in 1927, and intensified in the early 1930s as a measure against the Japanese. "The Method to Promote Phonetic Symbols" embodied the principles of party propaganda in its very wording, and it laid out the guidelines to deal with the thorny issue of vernacular languages as well. From 1930 onwards, the major rival of the Chinese Latin Alphabet was not GR but the Phonetic Symbols.

The last section turns back to the CLA and the "noise" that it generated. After its ratification in Vladivostok, the Chinese Latin Alphabet slowly entered the Chinese market, and offered a different vision for a national linguistic community that the KMT had to silence first. The Latinists turned vernacular representation into the main objective, and thus the movement grew even bigger than the Communists and their party politics. For non-Communist intellectuals in China as well, the Chinese Latin Alphabet became a means to voice dissatisfaction with the policies of the KMT. As such, the CLA worked both as an infrastructure for linguistic representation and as a potential communication channel for anti-establishment. In posing the CLA as a counterweight to the Phonetic Symbols, I would like to underline the radically different politics of the former, and also highlight the difference between the CLA and its offspring *pinyin*, the official phonetic alphabet of the PRC, which will be the subject of the next chapter. The CLA thus offers a window into a historical moment in which creating an alternative, multilingual information society in China was materially tangible, politically plausible, and popularly supported. But it was crushed first by the KMT and later, ironically, by the CCP.

I. The Chinese Latin Alphabet and *Gwoyeu Romatzyh*

Chinese Communists in Moscow enthusiastically embraced Latinization as part of socialist internationalism. Among them were well-known figures who later took office under the PRC, such as Xiao San, Wu Yuzhang, and Lin Boqu. The leader of the Chinese Latinization Movement and the author of the first book on the Chinese Latin Alphabet was the young communist Qu Qiubai (1899-1935), who had started learning Russian in Beijing, where he was exposed to Li Dazhao's Marxist teachings at Beijing University. Xiao San, Wu Yuzhang, and Lin Boqu, on the other hand, were all working for the Comintern at the Institute for Scientific Research on China, which dealt with political, social, and economic problems to chart a socialist future for China. It was Qu Qiubai and the Russian Sinologist Vsevolod S. Kolokolov (Ch. Guo Zhisheng 郭質生) who started drafting a proposal for a Chinese Latin Alphabet in February 1929, several months after the invention of the New Dunganese Alphabet. Qu published the first article on the Chinese Latin Alphabet in *Problems of China* (*Problemy Kitaia)* in 1930 together with a separate brochure titled *Chinese Latinized Alphabet* (*Kitaiskaia latinizirovannaia azbuka*).

Internationalism aside, Qu Qiubai's *Chinese Latinized Alphabet*, and the Chinese Latinization Movement in general, was a potent response to the linguistic and political developments in China under the Chinese Nationalist Party (KMT), the communists' ideological rival. In the 1920s, Chao Yuen Ren (Zhao Yuanren), arguably the most prominent linguist in China, had invented the first Romanization scheme for Beijing Mandarin—not to be confused with Latinization. Chao founded his Roman Alphabet on the basis of the National Phonetic Alphabet, which was already officially recognized by the state. In November, 1926, endorsed by other leading intellectuals and linguists in China, such as Qian Xuantong, Lin Yutang, Wang Yi, Zhou Bianming, and Li Jinxi, the National Language in Roman Alphabet (*Gwoyeu Romatzyh,* from now on, GR) was

recognized by the Preparatory Committee as the Second Phonetic Alphabet for Mandarin; and in 1928, it was officially recognized by the KMT as well.[597] (Fig. 8.1) When Qu Qiubai, Kolokolov, and others were inventing the Chinese Latin Alphabet in Moscow, the Roman Alphabet was their intimate enemy.

國語羅馬字拼音法式

——國音字母第二式(續)——

聲調拼法(二)

(結合韻母)

	(陰平)	(陽平)	(上)	(去)
ㄧㄚ	ia	ya	yea,-ea	yah,-iah
ㄧㄛ	io*	yo*	yeo,-eo*	yoh,-ioh*
ㄧㄝ	ie	ye	yee,-iee	yeh,-ieh
ㄧㄞ	iai*	yai	yeai,-eai*	yay,-iay*
ㄧㄠ	iau	yau	yeau,-eau	yaw,-iaw
ㄧㄡ	iou	you	yeou,-eou	yow,-iow
ㄧㄢ	ian	yan	yean,-ean	yann,-iann
ㄧㄣ	in	yn	yin,-iin	yinn,-inn
ㄧㄤ	iang	yang	yeang,-eang	yanq,-ianq
ㄧㄥ	ing	yng	ying,-iing	yinq,-inq
ㄨㄚ	ua	wa	woa,-oa	wah,-uah
ㄨㄛ	uo	wo	woo,-uoo	woh,-uoh
ㄨㄞ	uai	wai	woai,-oai	way,-uay
ㄨㄟ	uei	wei	woei,-oei	wey,-uey
ㄨㄢ	uan	wan	woan,-oan	wann,-uann
ㄨㄣ	uen	wen	woen,-oen	wenn,-uenn
ㄨㄤ	uang	wang	woang,-oang	wanq,-uanq
ㄨㄥ	ueng	weng*	woeng	weng
-ㄨㄥ	-ong	-orng	-oong	-onq
ㄩㄝ	iue	yue	yeue,-eue	yueh,-iueh
ㄩㄢ	iuan	yuan	yeuan,-euan	yuann,-iuann
ㄩㄣ	iun	yun	yeun,-eun	yunn,-iunn
ㄩㄥ	iong	yong	yeong,-eong	yonq,-ionq

Fig. 8.1 - Gwoyeu Romatzyh (GR), the National Language in Roman Alphabet

Qu Qiubai despised GR. Since the earliest days of phoneticization, the tones in Chinese speech were an obstacle for devising letters for Chinese. How could a phonetic script represent

[597] "Guoyu luomazi pinyin fashi – guoyin zimu di er shi," Guoyu yuebao, no. 1 (1927), 1-2.

tones without the visually invasive and typographically difficult diacritic marks? Chao Yuen Ren found the answer, which was the reason both for other linguists' veneration and Qu Qiubai's condemnation of it. Chao suggested to use the letters themselves to show the four tones of Beijing Mandarin. The sound "ia," for instance, was written as "ia" if it was in the first tone, "ya" in the second tone, "yea, -ea" in the third tone, and "yah, -iah" in the fourth tone. It was ingenious indeed, for the tones were incorporated into the phonetically written words. But the problem, for Qu Qiubai, was that it could only be used for the officially-recognized Beijing Mandarin, which had four tones. How about the Chinese languages that had more than four tones? How could GR accommodate an Amoy speaker with seven or eight tones, or Cantonese with nine tones? Qu did not hold back his words: Romanized Chinese Script was a "disgusting Chinese Script 肉麻字的中國文."[598] For him, the elitist pretension of the KMT-supported GR disqualified it as a national phonetic writing system, for it imposed standardization at the expense of linguistic diversity, which as we have seen earlier was one of the major issues that Chinese reformers faced since the early days of the phoneticization movement. The biggest difference between Romanization and Latinization was that the former sought to standardize Chinese based on one speech, Beijing Mandarin, whereas the latter wanted to allow vernacular linguistic communities free expression. "Romanization" was "bourgeois Latinization," in the words of the Latinists; in fact, the choice of Beijing as the language of the government reflected the "exploitative practices" of the ruling class.[599] For Latinists, even if Mandarin could become

[598] Qiubai Qu, "Luomazi de zhongguo wen haishi roumazi de zhongguo wen?" On the debate between Latinists and Romanists, see, Yurou Zhong, "Script Crisis and Literary Modernity in China, 1919-1958" (PhD dissertation, Columbia University, 2014), 142-156.

[599] I. Laikhter, "O latinizatsii kitaiskoi pis'mennosti," *Kul'tura i pis'mennost' vostoka,* no. 9 (1931), 28-29.

the national language, all linguistic communities had the innate right to have an alphabetical infrastructure to represent their own tongues.

Qu Qiubai was not entirely correct in accusing Chao Yuen Ren's GR of representing the ruling class. Chao was the biggest name in Chinese linguistics and the first to systematically work on Chinese vernaculars. It was in part thanks to his pioneering linguistic work that the Latinists were able to devise new vernacular alphabets later in the 1930s. Moreover, Chao himself had been a supporter of alphabetization since the early 1920s, and for a long time believed that "the difficulties [in the future adoption of an alphabet] were not insurmountable."[600] Having said that, he never had a clear stance regarding the alphabetization of what he called "non-Mandarin dialects." Apart from his unfair attack on Chao, Qu Qiubai's theory of language also rested on questionable grounds, for he took multilingualism as the sole medium to eliminate class differences in speech. As Jing Tsu notes, Chao Yuen Ren's consideration of "dialects" was indeed more nuanced than Qu Qiubai's ideas on linguistic representation. For Chao, there were dialects even within a given linguistic community that still represented class differences, such as the "dialects" of highly-educated elites and that of immigrant laborers.[601] Multilingual representation, in other words, did not necessarily eliminate class differences, even if it did in principle offer a cultural technology for the "masses."

While condemning Chao to be a bourgeois, Qu's letters for the first Chinese Latin Alphabet indeed owed a lot to Chao's GR. After the invention of the New Dunganese Alphabet in 1928, Qu Qiubai and Kolokolov immediately started working on the Latinization of Chinese. In 1929,

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[600] Chao Yuen Ren, "Languages and Dialects in China," *The Geographical Journal*, vol. 102, no. 2 (Aug., 1943), 66.

[601] Jing Tsu, "Romanization Without Rome: China's Latin New Script and Soviet Central Asia," in *Asia Inside Out: Connected Places,* ed. Eric Tagliocozzo, Helen F. Siu, Peter C. Perdue (Cambridge: Harvard University Press, 2015), 335-336.

when Qu published *Chinese Latinized Alphabet*, it was surprising that the letters he chose for the Chinese Latin Alphabet were significantly different from the New Dunganese Alphabet. Composed of 23 letters in total (a b c d e f g h i j k l m n o p r s t u w y z) and an extra "ń" for "ng," it was closer to the KMT-approved GR, despite the scathing critique that Qu posed against it.[602] The difference was political more than technical. When Qu was devising his Latin letters as an alternative to the Roman letters approved by the KMT, the main problem he encountered was the representation of "five tones (*wusheng*)." The fifth tone (*rusheng*), which troubled the missionaries and Chinese script reformers for a long time, was a concern for Qu as well, who was himself hailing from the southern province of Jiangsu where the fifth tone was integral to vernacular speech. As opposed to previous reformers who tried to represent the fifth tone with an extra sign, such as an *h*, Qu made a strange decision: the tones, he claimed, did not matter. Liking the tones, wrongly, to "accents" in Indo-European languages, Qu decided to take not only the fifth but all of the tones out of his alphabetical system.[603]

Qu's alphabet was thus ambiguous on more than one front. On the one hand, certain letters were closer to GR than to the USSR's Unified Alphabet. For instance, as in GR, Qu made use of digraphs (*zh, ch, sh, jh*), even though digraphs did not exist in the Unified Alphabet. Further, in situations where the use of tones was an absolute necessity, he adopted the GR's technique of representing tones with the letters themselves—as in *mae* 買 (to buy) and *mmae* 賣 (to sell), or *she* 是 (to be) and *sshe* 使 (to use).[604] On the other hand, it was not clear what speech Qu's alphabet was meant to represent. The title of the book, *Chinese Latinized Alphabet*, obscured

[602] Tsiui Vei-To [Qu Qiubai], "Kitaiskaia latinizirovannaia azbuka," *Problemy Kitaia*, 2 (1930), 136-139.

[603] Tsiui Tsiubo (Strakhov) [Qu Qiubai], *Kitaiskaia Latinizirovannaia Azbuka* (Moskva: KUTK, 1930), 7-9.

[604] ibid., 11.

more than it revealed, and some of the transcriptions made it clear that the sounds the Latin Alphabet stood for was a mix of northern and southern linguistic sounds. 昂, for instance, pronounced as *ang* in the north, was transcribed as *ńań* in Qu's book, which was closer to the character's southern pronunciation.[605] *Chinese Latinized Alphabet*, in other words, did not represent a standardized speech.

Qu's decision to step away from the Soviet Union's Unified Alphabet was enigmatic. The decision to use digraphs such as *ch* or *sh* instead of the Unified Alphabet's *ç* or *ş* was later framed as a practical decision to use typewriters, which seems like a plausible explanation, since typewriters that could type in the Unified Alphabet were not available in the USSR when Qu devised the Chinese Latinized Alphabet—an issue that I will discuss more in the following pages.[606] But one wonders whether Qu's decision was part of an effort to resist a possible Sovietization, and instead preserve a sovereign place for China. Or perhaps he wanted to distance Chinese Latinization from a Sino-Muslim Latinization? Whatever the reasons might have been, Qu's alphabet went through another change in May 1930, when the Chinese Latinists invited Alexander A. Dragunov (Ch. Long Guofu 龍果夫), who was then working on Dunganese, to help reform the alphabet. With Dragunov's involvement, Qu's alphabet was brought closer to the Unified Alphabet—Qu's "h" was replaced with an "x" (the Latin letter for ҳ) and "c" was designated as a sign that followed both the Mongolian pronunciation "ts" together with the New Turkic "ch"—but the digraphs remained intact with some minor changes (*jh* was turned into *rh*,

[605] ibid., 70.

[606] Haishu Ni, *Ladinghua xin wenzi yundong biannian jishi* (Beijing: Zhongguo renmin daxue yuyan wenzi yanjiusuo, 1978), 25-26.

and *ń* into *ng*).[607] In May 1931, the All-Union Central Committee of New Alphabet approved the Chinese Latin Alphabet, and the final version was accepted in Vladivostok during the First Chinese Latinization Conference in September, 1931.[608] The five digraphs—*zh, ch, rh, sh, ng*—were to cause some headache to the Chinese Latinists in the following years, as I will explain below.

As a matter of fact, the technical differences between the Latin Alphabet and the Roman Alphabet were not as great as their ideological differences—after all, they both used the same letters, even if the letters signified different sounds due to their historically different genealogies. As the next sections will explain in detail, when the Chinese Latin Alphabet reached China, its main rival was no longer the GR but Phonetic Symbols (*zhuyin fuhao*). In 1930, when the KMT turned Phonetic Symbols into the official phonetic script of China, GR quickly became a thing of the past. The final battle was between the CLA and the Phonetic Symbols.

II. Phonetic Symbols and Propaganda Warfare

When Chen Yuxin, a Communist army general, published his book *Propaganda War* (*xuanchuan zhan*) in 1931, some praised it as the greatest piece on the modern military strategy of attacking the minds (*gongxin zhanshu*). "Attack the mind first, the city next" (*gongxin wei shang, gongcheng wei xia*) captured the essence of propaganda warfare, as the generals of propaganda defined the war over minds as a "mental struggle" (*jingshen juedou*) and a "mental

[607] "Khronika," *Kul'tura i pis'mennost',* no. 9, 1931, 81. Although "Khronika" claimed that "c" was the Mongolian "ts," one may observe from the Chinese texts written with the CLA that "c" occupied an ambiguous position, signifying what *pinyin* represents with "c," "ch," and "q."

[608] Laikhter, ibid., 30. Vladimir G. Datsyshchen, "Kitaiskii iazyk i kul'turnaia revoliutsiia v Sovetskoi Rossii," in *Rossiia i Kitai: Istoricheskii opyt vzaimodeistviia i novye grani cotrudnichestva - Materialy nauch.-prakt. konf., Ekaterinburg, 25-26 noiabria 2008* (Ekaterinburg: Izd-vo Ural. Un-ta, 2009), 15.

war" (*jingshen zhan*).[609] According to Chen, with the development in printing and telecommunication technologies, every medium of communication was a medium of propaganda. Examining British, American, French, and German propaganda regimes, he noted that wireless telegraph, telephone, printing presses, bookshops, novels, plays, and even parachutes, balloons, pigeons, and dogs could all be used for propaganda purposes.[610] The key to success was the strategic use of media.

Chen Yuxin published his book during the early years of the propaganda warfare between the Nationalists and the Communists, which started right after the Shanghai massacre in 1927, when the KMT's communist purge began. The two parties immediately started engineering their own networks, militarily and socially, in which the elimination of noise in the channels of communication and absolute control over media were the core concerns. As early as November, 1927, the party headquarters of the KMT started sending the Central Propaganda Bureau the guidelines to control information.[611]

The Communists were not the only problem for the KMT. The Reorganization Clique (*gaizu pai*), the political faction within the KMT headed by the future president of the collaborationist government Wang Jingwei, put an obstacle before Chiang Kai-shek's political consolidation of the party. Neither did the escalating tensions in the northeast between China and Japan help the KMT's project to unify the nation under one party. The suppression thus targeted all sides. Starting early in 1931, before the Japanese invasion of Manchuria in September, a heavy censorship regime was under way. To give a few examples: in January, the Tianjin-based

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[609] Diancheng Guo, "Guo xu," in Yuxin Chen, *Xuanchuan zhan* (Lujun daxuexiao, 1931), 1; Pan Zhou, "Zhou xu," ibid., 1.

[610] Yuxin Chen, ibid., 124-154.

[611] Academia Historica (AH), 001000001920A, Guomin zhengfu, Guomindang xuanchuan gongzuo an (10), "Zhongyang zhengzhi xuanchuan cailiao," (November-December, 1927), 558-584.

People's Daily was closed on grounds that it harmed party unity. In February, Sima Xiandao's *Schools of Thought After the Northern Expedition* was banned. Shanghai Huaxing Press was closed down the same month, for publishing communist books and pamphlets. The Reorganization Clique's newspaper *Chongqing Chuankang Daily* was forced to cease publication as well. *Chengdu Pingbao* was shut down. *Tianjin Bao*, banned. In March, the journal *Truth* was deemed dangerous by the party authorities in Kaifeng. Banned. Zhu Xinfan's *The Relationship Between Chinese Countryside and Economy, and Its Characteristics* encouraged class struggle. It was burned. In April, Beiping Zhonghua Communication Press was closed down. In June, *Tianjin Evening Daily*, a Chinese newspaper published by a Japanese, was banned. In Shanghai, Pingfan Press, run by communists Gao Xisheng and Guo Zhen, was shut down. The Sichuanese newspaper *Chengdu People's Daily* faced the same end. Banned. *Tianjin Review* —banned. Its owner Liu Jilan —detained.[612]

In April 1930, as the party was increasing its control over the channels of communication, the KMT Central Executive Committee changed the name of "National Phonetic Alphabet" (*zhuyin zimu/guoyin zimu*) to "Phonetic Symbols" (*zhuyin fuhao*), and this syllabary became the party's most intimate ally. The change of name was a deliberate decision to emphasize the infallible place of the Chinese characters. The Committee noted that the Phonetic Symbols were like Japanese *hiragana*, i.e., phonetic equivalents of Chinese characters, "symbols" that were only

[612] AH, 001000001912A, Guomin zhengfu, Guomindang xuanchuan gongzuo an (2), "Chajin renmin ribao," (Jan. 1931), 1709-1714; "Chajin beifahou zhi gepai sichao kanwu," (Feb. 1931), 1732-1737; "Chajin beiping zhonghua tongxun shegao," (Apr. 1931), 1866-1871; 001000001914A, Guomin zhengfu, Guomindang xuanchuan gongzuo an (4), "Chafeng shanghai huaxing shuju," (Feb. 1931), 2180-2210; "Chafeng shanghai pingfan shuju," (Jun. 1931), 2234-2261; 001000001915A, Guomin zhengfu, Guomindang xuanchuan gongzuo an (5), "Chafeng chongqing chuankang baoshe," (Mar. 1931), 2377-2394; "Chafeng chengdu pingbao," (Jun. 1931), 2455-2460; "Qudi tianjin xintian jinbao," (Jul. 1931), 2474-2478; 001000001913A, Guomin zhengfu, Guomindang xuanchuan gongzuo an (3), "Chajin shihua kanwu," (Mar. 1931), 1892-1897; "Chajin zhongguo nongcun jingji guanxi jiqi tezhi kanwu," (Mar. 1931), 1909-1914; "Chajin hanwen tianjin ribao wankan," (Jun. 1931), 1949-1954; "Chajin chengdu guomin ribao," (Jul. 1931), 1987-2002; "Chajin tianjin pingbao ji fushe zhi gongyan tongxun she," (Aug. 1931), 2091-2096.

used to indicate the characters, not replace them.[613] It was telling that the KMT took the decision to adopt Phonetic Symbols in 1930, right after Qu Qiubai published his essay on Chinese Latinization in Moscow, and called for a complete replacement of the Chinese characters with the Latin alphabet. Phonetic Symbols were resolutely anti-communist.

Phonetic Symbols embodied all that the Committee could have asked for. They could be learned in "three days," and thus conformed with the modern search for speed in accessing information. They could be printed next to Chinese characters, or be used by themselves. And it was possible to transcribe standard Mandarin as well as non-Mandarin speeches with the new alphabet: "[With Phonetic Symbols] there is no sound that cannot be transcribed, and no speech that cannot be communicated (*wuyin bu ke zhu, wuyu bu ke chuan*)."[614] Its power to transcribe all languages and the possibility to use it even without characters were important at all levels of society and bureaucracy, and were especially significant for propaganda purposes:

> If the party adopts the Phonetic Symbols, it can save strokes and ink in propagating the doctrines (*xuanchuan zhuyi*) and spreading them to reach large numbers of illiterate masses. If government officials adopt it, common people's concerns and problems will be understood better, for [officials] may accept documents written in Phonetic Symbols by people who do not know Chinese characters, and [they may] issue orders in Phonetic Symbols. If teachers and students adopt it, they may exert the least amount of time and effort, and teach all their family members, servants, colleagues, and friends [how to use Phonetic Symbols]. … When [nation-wide] mobilization is in order, intelligentsia may do its utmost for propaganda, and like in Japan, [people] may read general books and newspapers with hiragana (i.e., Phonetic Symbols). It will be in no time that the number of literate people will rise from twenty percent to seventy or eighty percent.[615]

[613] AH, Guomin zhengfu, Guoyu zhuyin fuhao tuixing faling an, "Zhongzhihui jueyi gai zhuyin zimu mingcheng wei zhuyin fuhao ji tuixing banfa," (Apr. 1930), 2004010a.

[614] ibid.

[615] ibid., 2004011a-12a. 黨部得之，可藉筆墨之力，宣傳主義，普及於大多數失學之民眾。政府官吏得之，可收受不識字人之注音狀牒，及張布注音文告，而民隱由是大通，教育界之教師與學生得之，皆能費極少之時間，及極少之勞動，各指示母姑姊妹傭人工友，若如是的全國知識界下總動員令，努力宣傳，照日本能讀通俗假名附注之書報，即算識字之例，不難由百分二十之識字人數目，在短時內立增至七八十分。

The Committee immediately informed all the party offices and cadres about Phonetic Symbols' use to intensify the propaganda of party doctrines (*zeng xuanchuan dangyi*), and ordered all officials to acquaint themselves with the alphabet. The Ministry of Education spread the word to all education offices: Phonetic Symbols was going to be the official alphabet of the regime. The Ministry of Education established the Phonetic Symbols Commission (*zhuyin fuhao tuixing weiyuanhui*), and started teaching the alphabet to all government cadres in Nanjing, while quickly drafting a plan to spread this activity to all provinces, cities, and districts. On May 21, 1930, Jiang Menglin, the Minister of Education who received his credentials from Columbia Teachers College, entrusted the Phonetic Symbols Commission with the task to study and edit the necessary publications concerning the alphabet, draft a proposal to promote it, help all central government offices learn it, and supervise and lead its spread across the nation.

The Central Executive Committee drafted an even more elaborate order, and in July, 1930, the Ministry of Education officially made it public: "The Method to Promote Phonetic Symbols in Each Province, City, and District." According to the order, the education departments and offices (*jiaoyu tingju*) in each province, city, and district were going to set up Phonetic Symbols Committees. The committee leaders (*zhidao yuan*) were going to go to each district (*xian*), region (*qu*), village (*xiang*), town (*zhen*), neighborhood (*lin*), and alley (*lü*) to promote the new alphabet and take part in linguistic surveys. They were then going to report these survey materials to the Executive Office of Education (*jiaoyu xingzheng jiguan*) and the Preparatory Committee for the National Unification of Language, and prepare booklets for teaching Phonetic Symbols to people of different "regional languages (*fangyan*)." In other words, the Central Executive Committee saw the agents of the new alphabet as *ad hoc* linguists who could survey and bring the vernacular communities under the same party-governed circuit of information, and

carry out the literacy movement that helped propagate the party doctrines to those who could not speak the national language, Mandarin.[616]

That was not all. Each place was going to have new typefaces for Phonetic Symbols, so that they could be printed next to the Chinese characters. Even news was going to be published with Phonetic Symbols. All the road signs, street names, business signs, station signs, school signs, factory signs were going to be transcribed with them. Propaganda slogans (*xuanchuan biaoyu*) and advertisements were not going to be left without the new alphabet, either. Neither were government offices nor organizations nor teams nor schools. "President Sun Yat-sen's Will" (*zongli yizhu*) and "Instructions" (*xunci*) as well as all textbooks were going to be printed with Phonetic Symbols. On official publications and local newspapers, the right side of the characters were going to have Phonetic Symbols for National Language (Mandarin, *guoyu*), and the left side Phonetic Symbols for other vernacular languages and dialects.[617]

The emphasis on vernacular languages and dialects was significant in portraying the KMT's vision of vernacular languages, built on already existing scholarly works on "dialectology." Dialect studies emerged as a crucial component of the Folklore Movement, which started in 1918 at Peking University, led by the progressive intellectuals of the day, such as Qian Xuantong, Shen Jianshi, Liu Fu, Zhou Zuoren, Wei Jiangong, Lin Yutang, and others, who endeavored to discover local traditions and enlighten the people from below, in an effort to create a Chinese nation.[618] The Folklore Movement focused on collecting folksongs from different regions, and the collectors were particularly attentive to linguistic differences, since especially in southern

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[616] ibid., 1918-1923. For the official order, see, Jiaoyu bu, "Ge sheng shi xian tuixing zhuyin fuhao banfa," *Jiaoyu bu gongbao*, vol. 2, no. 38 (1930), 32-34.

[617] ibid., 1922-23.

[618] Vera Schwarcz, *The Chinese Enlightenment: Intellectuals and the Legacy of the May Fourth Movement of 1919* (Berkeley, Los Angeles and London: University of California Press, 1986).

China, the songs could not be recorded using Chinese characters, for the pronunciations were very different. As the number of songs collected reached tens of thousands, and the movement grew to include diverse languages, a new methodology of transcription became crucial to ensure accuracy in recording—National Phonetic Alphabet was not sufficient. In 1923, Qian Xuantong came up with the first proposal to use the International Phonetic Alphabet (IPA).[619] In 1924, under the leadership of Shen Jianshi at Peking University, the first Dialect Survey Society (*fangyan diaocha hui*) was formed, and IPA was chosen as the method for linguistic transcription. The movement quickly accelerated. In 1925, Liu Fu, on his return from France, stated the need for a dialectological map of China.[620] And soon, especially after the institutionalization of linguistics with the Institute for History and Philology in 1928, the collection of folksongs evolved into a national linguistic project of identifying all the languages and dialects spoken in China.

The KMT's linguistic aspirations aimed to consolidate this growing movement, and peruse it for its own political purposes. Yet, the members of the Folklore Movement, some of whom became leading linguists in the following years, were never simply the mouthpieces of the party. Until the start of the War Against Japan in 1937, the government openly supported the linguistic and dialectological work undertaken by the newly-formed Institute for Philology and History, and planned to transcribe all sounds with an extended set of Phonetic Symbols. It would thus

[619] Xuantong Qian, "Geyao yinbiao siyi," *Geyao zhoukan (zengkan)* (Dec., 1923), 1-8. Zhou Zuoren, in November, 1923, had also proposed a Romanization scheme for transcribing dialects, but it was not as detailed as Qian's. See, Zuoren Zhou, "Geyao yu fangyan diaocha," *Geyao zhoukan*, no. 31 (Nov., 1923), 1-3. For a summary of the folklore movement, see, Jie Gao, "Saving the Nation through Culture: The Folklore Movement in Republican China (1918-1949)" (PhD dissertation, University of Western Ontario, 2009).

[620] Liu Fu also constructed a numerical methodology to represent phonemes, and applied it to "Beiping's Regional Sounds." See, Fu Liu, "Beiping fangyin xishu biao - fubiao," *Guoxue jikan*, vol. 3, no. 3 (1932), 535-540.

infiltrate the minds of every speaker, and conquer every surface of writing imaginable. It was a measure for propaganda, and a convenient step towards national unification.

But it was easier said than done. Implementing the government's plan required linguists to transcribe non-Mandarin linguistic sounds with newly designed Phonetic Symbols, and printers to cast the new types and print the materials in large amounts. From 1930 to 1937, the KMT was not powerful enough to mobilize the linguists under its flag, and was only partially successful to make an alliance with the large publishing companies, such as the Commercial Press and the Zhonghua Press.[621] During these years, the KMT remained as a party with great linguistic aspirations, but little resources to realize them.

The Ministry of Education's Preparatory Committee for the National Unification of Language commenced work soon after the promulgation of "The Method to Promote Phonetic Symbols." In order to concoct an accurate linguistic map of China, and to ascertain the exact symbols needed to accurately represent all linguistic sounds, the Committee prepared the preliminary survey material, and forwarded it to every district and city in November, 1931: what was the name of the district/city surveyed? How was the name pronounced in local dialect? What was the history of its administration? How was the region linguistically divided? What were the Chinese dialects and non-Han languages spoken in the region? What were the main differences between the languages and dialects? In what ways were the local speeches similar to those outside of the region surveyed?[622] The Preparatory Committee asked the local officials to fill in

[621] Christopher Reed, *Gutenberg in Shanghai*, 203-256.

[622] "Lingfa diaocha quanguo yuyan quyu zhuangkuang biaoshi, zunzhao tianming jingji beiping shi dangbu jie guoyu tongyi choubei weiyuanhui (fubiao)," *Zhejiang jiaoyu xingzheng zhoukan*, vol. 3, no. 16 (1931), 2-4.

the survey and send it back, noting that a collaboration between government institutions and private individuals would be mutually constitutive for the language reform under way.[623]

It is difficult to find out how effective this method of information gathering was. Linguistic transcription after all demanded a technical skill that the government's *ad hoc* linguists on the ground did not. But there were still some exceptions. In Hubei, for instance, Wang Zuyou 王祖祐, who worked at the local government's education department, carried out dialectological work in the province, but no publications followed except phonetic lists of characters.[624] In Fuzhou, Zhang Yongrong and Chen Ximeng published a piece on Fuzhou speech in 1931, and transcribed the 1271 characters in James Yen's famous primer, *Thousand-Character Primer for the Urban People* (*shimin qianzi ke*), in Fuzhou speech, although it is not clear if it was ever printed for mass use.[625]

The bulk of the work, as might be expected, was undertaken not by officials, but the linguists at the Institute of History and Philology, such as Chao Yuen Ren, Li Fanggui, Luo Changpei, Yang Shifeng, Bai Dizhou, Wang Jingru, and younger fieldwork assistants. These linguists, however, did not share the government's enthusiasm to turn dialectological work into propaganda. For them, their years of work and hundreds of surveys in the cities and districts of Hebei, Henan, Shaanxi, Anhui, Guangxi, Jiangxi, Hunan, and Hubei were part of a scholarly enterprise. Later in the 1940s, Li Jinxi, a central figure in the National Language Commission,

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[623] "Diaocha quanguo yuyan quyu fenbu zhuangkuang," *Guoyu yuekan*, vol. 2, no. 33, 1932.

[624] Zuyou Wang, "Hubei fangyin: Qishui yin (weiwan)," *Minzhong xunkan*, no. 8 (1931), 45-53; Zuyou Wang , "Tan qingchu yin (da ge xueyuan zhiyi)," *Minzhong xunkan*, no. 10 (1931), 36-49. Another person who published on the speeches of Hubei was C. H. Westbrook, an American missionary. Zonghai Wang (C. H. Westbrook), "Hubei fangyin: Chongyang yin," *Minzhong jiaoyu zhoukan*, no. 2 (1931), 35-39.

[625] Yongrong Zhang and Ximeng Cheng, "Fuzhou fangyin zhuyin fuhao chugao," *Jiaoyu zhoukan,* no. 62-63 (1931), 54-69.

would complain about the purely academic works of these linguists, as I will explain in the next chapter.

There was very little dialectological research that turned into what the government could consider as a successful implementation of its policies. The frequently-used words of only one vernacular speech—Suzhou—was published by the Commercial Press; and soon afterwards, textbooks of short phrases and *chengyu* of a similar tongue, that of Wuxi, were published, again by the Commercial Press. These examples, however, were merely exceptions. Suzhou had a special place in Chinese linguistics, for it belonged to the larger Wu family (*wuyu*), the subject of the first Chinese book on modern dialectology, penned by Chao Yuen Ren in 1928.[626] When in 1935, Lu Ji, a member of the Preparatory Committee, printed *Suzhou Phonetic Symbols* (*suzhou zhuyin fuhao*) with the Commercial Press, the government praised it as one of the first fruits of dialectology, and immediately endorsed it as an effective medium of education, a model to be emulated.[627] But it remained as a model that was not emulated by other vernacular tongues, at least not in the Phonetic Symbols. Only after 1936, and especially during the war, did the government intensified its efforts to use the Phonetic Symbols, but by then the Chinese Latin Alphabet had already emerged as a dangerous contender.

[626] Yuen Ren Chao (Yuanren Zhao), *Xiandai wuyu yanjiu* (Peking: Tsing Hua College Research Institute, 1928); Yuen Ren Chao, "Suzhou fangyin zhuyin fuhao yu kuanshi guoji yinbiao duizhao biao," *Geyao zhoukan*, vol. 2, no. 15 (1936), 8.

[627] *Suzhou Phonetic Symbols* was a list of frequently-used homophonic characters in Suzhou dialect, and it was printed by the Commercial Press. For a facsimile edition, see, Bangxin Ding, *Yi bai nian qian de suzhou hua* (Shanghai: Shanghai jiaoyu chubanshe, 2003), 251-288. For the party's endorsement of the project, see, "Fangyin zhuyin fuhao zhi jixu tuixing," *Zhongguo guomindang zhidao xia zhi zhengzhi chengji tongji*, no. 3 (1936), 105.

III. The Chinese Latin Alphabet in China and the USSR

As the government aimed to transcribe all sounds in the Phonetic Symbols, the Latinists embarked on a nation-wide project that deliberately resisted the government's attempt to use indigenous signs for its propaganda purposes. Chinese Latinization, as I have explained in the previous chapter, was part of a larger Eurasian Latinization movement that started in the Ottoman Empire and southern Caucasus, and was later appropriated by the Soviet Union's socialist and internationalist program to found a new culture of knowledge. As the Latin Alphabet traveled from Azerbaijan to China, however, it went through a material and political transformation, as it was re-appropriated by Chinese left-wing intellectuals to speak to the linguistic and political conditions in China.

This re-appropriation added a new layer to the complex process of exchange. It is surprising that the Latinization of various Chinese languages only started in 1935-36, several years after the invention of the Chinese Latin Alphabet in Vladivostok. This time lag stemmed from problems related to Latinization within the USSR. Even though the project began with great aspirations, much like the KMT's for the Phonetic Symbols, the implementation of the Latin Alphabet for Chinese languages was more complicated than it seemed. From the invention of the New Dunganese Alphabet in 1928 to the Latinized transcription of various Chinese languages in 1936, the progress of the movement in the USSR was slow. As a matter of fact, even though the idea to Latinize multiple Chinese languages was central to the program of Latinization, it remained merely as an idea, for Russian linguists and Chinese communists in the USSR did not have the linguistic know-how to carry it out. The project came to fruition only in 1935, when left-wing intellectuals in China embraced it as a means to counter the KMT's ultimately monolingual plans. As we will see in the following pages, these intellectuals were neither all CCP members

nor were they pawns of the Soviet Union. Even though it was initiated by the Chinese Communist Party, Latinization grew larger than the party itself.

A) The CLA in the USSR

The First Chinese Latinization Conference in Vladivostok was the most significant event in the history of Chinese Latinization, as it spelled out the purpose of the Chinese Latin Alphabet. The participants of the conference, including the strongest name in Chinese Latinization, Xiao San, whom we have encountered as a protagonist in Nazim Hikmet's poetry, stood up against the elitist literary culture that they believed the Chinese characters helped reproduce. The "efficiency" debates that had been going on since the late-nineteenth century were refashioned within the paradigm of an anti-imperialist class struggle. "Imperialists and the KMT," noted Xiao San during the Conference, "are trying to extinguish the movement for a proletarian culture, … banning *baihua* (colloquial literary style), and propagating against the Latin Alphabet [with] the National Phonetic Alphabet as a way to keep the ideographic writing system."[628]

In the spirit of internationalism and proletarian revolution, the Conference strongly resisted phonetic alphabets that were permutations of logographs, such as Korean *hangul*, Japanese *hiragana*, and Chinese Phonetic Symbols. The Latin Alphabet, which used to be an instrument of Western colonialism, became an anti-imperialist weapon in the hands of the Communists. Secondly, the Conference drafted a highly radical resolution, stating that as opposed to the KMT's Unification of Language Movement, "the speech (*kouyin*) of a certain place cannot be made into the standard speech of the entire country." It instead divided Chinese "speeches" into five main regions —Northern, Guangdong, Fujian, Zhejiang, and Hunan and Jiangxi— and

[628] ARAN, f. 676, op. 1, d. 245, l. 57.

claimed that each of these places should be given the right to develop their own local cultures.[629] In 1931, the only textbook published in the Latin Alphabet was that of Northern Mandarin, but the plan was to publish textbooks, compile dictionaries, and thereby codify the non-Mandarin vernacular languages as well.[630]

The initial formulation of this linguistic vision was confusing. According to the nationality policies in the USSR, language was one of the central instruments in the definition of nationalities, and at first glance, the Chinese Latinists' determination to give each vernacular a "culture" of its own seemed like a copy of the USSR's nationality policies. As a matter of fact, even Xiao San, during his speech in the Conference in Vladivostok, identified these mutually incomprehensible languages as "nationalities" (*natsional'nosti*).[631] At first sight, it seems that Qu Qiubai, Xiao San, and others tried to impose a Stalinist vision on China by implying that different languages indicated separate nationalities. The resolutions of the First Chinese Latinization Conference, however, makes it clear that Chinese Latinization and the politics of representation that came with it was not simply an imitation of the Soviet regime, but a carefully crafted appropriation of Soviet nationality policies into the local linguistic and political conditions of China. A comparison of the conference resolutions in Russian and Chinese translations clarifies this point. As mentioned above, the resolution in Chinese stated that "the speech of a certain place cannot be made into the standard speech of the entire country 不能以某一個地方的口音作為全國的標準音;" but the original resolution in Russian stated that "one out of many local Chinese dialects cannot be used as the standard for the whole country [нельзя

[629] ibid., l. 59.

[630] Sh Pingcing, *Latingxuadi zhungwen gungrhen duben (beifang koujin)*, redaktor Emi Siao (Vladivostok: Guogia lienxo chubanhu juandung fenbu Chuban, 1931), in ARAN, f. 676, op. 1, d. 245, l. 27-38.

[631] ibid., l. 57-58.

употребить один из местных китайских диалектов в качестве стандартного для всей страны].” Possibly because of the lack of commensurability in “speech” (*kouyin*) and “dialect,” the Russian resolution was later edited to insert the following correction: “one out of many local Chinese *languages or* dialects *of China* cannot be used as the standard for the whole country (нельзя употребить один из местных китайских [языков или] диалектов [в китая] в качестве стандартного для всей страны).”[632] In other words, the resolutions never spoke of a “multi-national” system; instead they were careful to emphasize a “Chinese National Culture (*zhongguo minzu wenhua*)” in which Latinization would allow a multilingual co-existence, but the represented “speeches” would not be designated as separate nationalities.[633] “Latinized China,” to put it succinctly, was a multilingual vision for one Chinese nation, which was significantly different both from the Soviet model and the KMT model, and even from what the nation turned out to become under the PRC.

Despite the emphasis on linguistic representation, however, the resolution was unclear about when exactly this codification was to take place. The Russian draft of the resolution stated that scientific work in Northern Mandarin and those in “dialects” was to take place simultaneously (*odnovremenno*); but the printed resolution in Chinese noted that since “70-80% of Chinese people can all communicate in Northern [Mandarin] speech, Northern speech is going to be used as the standard for now, and textbooks and dictionaries will be compiled in it. The compilation work in local speeches will start later.”[634]

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[632] ARAN, f. 676, op. 1, d. 245, l. 48.

[633] The particularity of China in implementing Leninist and Stalinist policies of language and nationality was addressed by one of the Russian Latinists of Chinese, Shprintsin. See, “G. Shprintsin, ‘O t.n. kitaiskikh dialektakh i obshcheliteraturnom kitaiskom iazyke,’” AV IVR RAN, r. 1, op. 1, d. 267.

[634] For the original Chinese, ARAN, f. 676, op. 1, d. 245, l. 59; the Russian draft is on l. 48.

Bloated statistics aside, the difference between the Russian and Chinese resolutions might have been the result of a practical problem. Even though multilingualism was the primary goal of the CLA, textbook and dictionary compilation for different languages across China was a scientific enterprise that required meticulous work, preferably *in* China. Given the geographical distance and the extant political problems between the two countries, Soviet linguists never conducted linguistic work on the ground. Their knowledge about Chinese "dialects" came either from the main journal of the Folklore Movement, *Geyao zhoukan*, or from the publications of Chinese linguists, some of which they would have labelled as "bourgeois," such as Chao Yuen Ren, Liu Fu, Wang Li, Zhou Bianming, and others.[635] Early in 1932, an ambitious plan to conduct work in Chinese languages and dialects was planned out—for Shanghai, Guangzhou, Nanjing, Hankou, Fuzhou, Changsha, Nanchang, Shanxi, Gansu, Jiangxi, Hunan, and Hubei—but none was carried through.[636] The only non-Mandarin linguistic work that came close to being carried out in the Soviet Union was that of Cantonese by Vasilii S. Pukhov (1908-1937), a Chinese of Cantonese origin working as a language instructor in the Oriental Institute in Leningrad, but the plan was never realized.[637] Almost every year, the Scientific Research Commission of the Far Eastern Committee of the New Alphabet, which had Xiao San as its president, had dialectological work in its plans, but every year, it was postponed to the next.[638]

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[635] "Shprintsin, 'Kitaiskii iazyk v DV Krae,'" AV IVR RAN, r. 1, op. 1, d. 268, l. 2-3.

[636] ARAN, f. 676, op. 1, d. 326, l. 30.

[637] I have not been able to find Vasilii Sergeevich Pukhov's Chinese name. If the Palladian spelling is correct, the *pinyin* for his name would be Huang Zhongzhe (Хуан Чжун-Чжэ). In May-June, 1932, the preliminary list of books to be published in the Chinese Latin Alphabet included a political brochure in Cantonese and a short Cantonese dictionary, both of which were to be authored by Pukhov. Later, Pukhov's books were taken out of the final list. ARAN, f. 676, op. 1, d. 310, l. 2-3 and 20-21.

[638] One of those plans was made for 1933-34, but it was never implemented. See, f. 676, op. 1, d. 328, l. 55.

As a matter of fact, even linguistic work in Northern Mandarin CLA was not coming along as successfully as imagined in the USSR. Right after the conference, the Far-Eastern Committee of the New Alphabet (*dal'nevostochnyi komitet novogo alfavita* [DVKNA]) was founded, chaired by Wang Xiangbao (Liu Changsheng), and aided by Xiao San, Wang Changxi, Li Tangbin, Lin Boqu, Wu Yuzhang, Zhang Chenggong, and Zhou Songyuan. Its purpose was to spread the CLA in the Far Eastern Soviet Union, where illiterate Chinese population was the largest.[639] The CLA was thus put in practice in the Far East, particularly in Vladivostok, Khabarovsk, Blagoveshchensk, and Artyom, but the social and technical limitations did not facilitate the ambitions of the movement. To start with, there were not enough teachers to teach the CLA.[640] Secondly, the Far Eastern Committee of the New Alphabet was having chronical problems with printing, to the extent that printing simply stopped in July 1932 because of the lack of typesets.[641] There were only three print shops, one in Vladivostok, one in Khabarovsk, and one in Blagoveshchensk, which were supposed to publish works for Latinized Chinese, Korean and for the ethnic minorities of the "Peoples of the North" (*narody severa*), but despite the constant calls from the Chinese, Koreans, and other minorities, they had still not received the typesets they needed by July, 1932.[642]

The bio-mechanics of printing and typing was a problem that none of the Latinists had apparently thought of. From the start of the Latinization Movement, Latinized typewriters and

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[639] Datsyshen, ibid., 15-16. Vladimir G. Datsyshchen, "Dvizhenie za latinizatsiiu kitaiskok pis'mennosti i razvitie kitaiskoi shkoly na sovetskom dal'nem vostoke," in *Rossiia i ATR,* no. 3 (2008), 160-169.

[640] ARAN, f. 676, op. 1, d. 326, l. 86.

[641] "Letter from the Executive Secretary of VTsK NA Iumankulov to the Presidium of the Soviet of Nationalities of the Central Executive Committee of the USSR (July 21, 1932)," ARAN, f. 676, op. 1, d. 327, l. 21.

[642] "Letter from the Secretary of the VTsK NA Iunusov to Gosplan SSSR (March 22, 1932)," ibid., l. 2 and 7. DVKNA requested tons of sorts to be delivered Khabarovsk, Vladivostok, Blagoshchevensk, Nikolsk, Posyet, Artom, Suchan, and Verkhneudinsk. ARAN, f. 676, op. 1, d. 326, l. 18.

linotype machines comprised the greatest problem for what was supposed to be the most efficient system of writing. Conceived as the "apparatus of *korenizatsiia*,"[643] the first Latin typewriter known as *Janalif*, engineered by the Tatars in Kazan, encountered a technical problem posed by internationalism and the Scientific Organization of Labor (NOT).[644] Following the principles of NOT (and Underwood typewriters), engineers led by Mukhammed Ibragimovich Idrisov (1882-1948) were trying to optimize "finger work (*rabota pal'tsev*)" in typing by calculating the letter-frequencies for each language. In 1929, Idrisov began his work, and devised different keyboard arrangements for twenty different nationalities in total. Only a few national languages that were close to one another in terms of letter frequencies had the same keyboards (such as Uzbek and Uyghur, or Chechen and Ingush); others were all separate, leading to a sudden proliferation of keyboards.[645] This abrupt need for typewriters was not easy to supply, since this was the first time that typewriters were ever produced in the USSR, and jamming was only the most basic of the issues.[646] The factories in Kazan and Leningrad were not producing efficiently enough to meet the demands from the Republics. As late as in 1934, standardized keyboards were manufactured only for Azeri, Bashkir, Kazan-Tatar, Kazakh, and Crimean Tatar.[647] In order to optimize production and open up room for other nationalities that still lacked their own keyboards, the Central Committee of the New Alphabet even tried to unify the keyboards of the

[643] ARAN, f. 676, op. 1, d. 286, l. 20.

[644] The first typewriter in the USSR was invented in Kazan in 1924, and was arranged for the Arabic alphabet then in use. After Latinization, it was again the Tatar engineers who spearheaded typewriter production in Kazan. ARAN, f. 676, op. 1, d. 147.

[645] ARAN, f. 676, op. 1, d. 1314, l. 46-90. Idrisov et alia did not invent a keyboard for every nationality in the Soviet Union. In total, there were around twenty keyboards. See, f. 676, op. 1, d. 1055, l. 40.

[646] ARAN, f. 676, op. 1, d. 520, l. 5-12.

[647] ARAN, f. 676, op. 1, d. 813, l. 1.

Turkic languages, although the project did not bear any fruit.[648] In 1936, the Committee was still demanding the standardization of keyboards for fifteen more languages, which was never achieved by the typewriter factories.[649] Scientific Organization of Labor, in other words, turned out to be a burden on internationalism. In the domain of linotype machines, the prospects were even worse. There were some efforts on the side of Tatar engineers from Kazan to invent linotype machines, but when they failed, the solution came in the form of importing the linotype machines from the Mergenthaler Setzmaschinen-Fabrik in Berlin, which also supplied the machines to the frustrated Latinists of the Far East, including those for Latinized Chinese and Korean in 1932.[650]

Even with linotype machines and partial success in typewriters, the problems continued to soar, not only for the Chinese but all nationalities in the Soviet Union, for the ideological power of Soviet Latinization was wilting. The first major breaking point in the movement came in 1932-33, when the ethnic, national, and linguistic policies in Ukraine and Belorussia turned out to be a catastrophe. Belorussian, Polish, Ukrainian, and Russian cultures were closer to one another, and in Belorussia and Ukraine, hostility towards Russian culture was considered to be a move away from the Soviet Union toward Poland. The east and the west of the Soviet Union were very different in this regard. In the East, Russophobia was considered to be a result of Tsarist colonialism, but in the West, it was considered to be "treasonous irredentism." Language politics occupied a particularly thorny place in the nationality policies of the West. Nationalization of languages, invention of terminologies, and acceptance/rejection of

[648] ARAN, f. 676, op. 1, d. 1055, l. 13 and 28.

[649] ARAN, f. 676, op. 1, d. 813, l. 1.

[650] ARAN, f. 676, op. 1, d. 327, l. 45-53.

Polish/Russian words in Ukraine and Belorussia were entangled with greater ethnic and national problems, which resulted in the terror campaigns of 1933.[651] As an extension of these issues in the West, Latinization suffered a huge blow in the East. In 1933, Semen Dimanshtein, the director of the Institute of Nationalities, noted that Russian language no longer had the same class content, and so it was different to non-Russian peoples from what it used to be before the Revolution.[652] This was the first time that Russian language was promoted by a member of the All-Union Central Committee, and it signaled a Russification that was quickly going to replace internationalism in the Soviet Union. Only two years later in 1935, the first crucial shift in Latinization took place in the Far East, when the Latin alphabets of the Peoples of the North (*narody severa*) were replaced by the Cyrillic alphabet. Latinization started to crack under pressure, as the initial project of an internationalist order without a center was turning into a network of national languages governed by Russian. Chinese Latin Alphabet could not escape the All-Union persecution.

One of the major accusations against the CLA came from Stanislav Antonovich Vrubel (1904-?), an instructor at the Sun Yat-sen University, who had not been content with the reformed Chinese Latin Alphabet since the beginning. According to Vrubel, the CLA was closer to the "bourgeois" English alphabet, i.e., GR, than to the internationalist alphabet of the USSR, i.e., the Unified New Turkic Alphabet, as exemplified by the New Dunganese Alphabet. There had in fact always been a subtle tension between Dunganese Latinization and Chinese Latinization, since Qu Qiubai's first effort at Latinization was based more on GR than the Unified New Turkic Alphabet. As I have noted, Dragunov moved the Chinese Latin Alphabet

[651] Martin, ibid., 204-207.

[652] Martin, ibid., 202.

closer to the Dunganese Alphabet in 1930, but the tension between the Dungans and the Chinese was not resolved. In 1932, the New Dunganese Alphabet was slightly reformed in Kazakhstan, and then in 1933, it was reformed again and given the same alphabet as the Chinese Latin Alphabet. But according to reports from 1934, it was rejected by the Dungans, who after all had their own nationality, and did not want to be consumed under a greater Chinese identity.[653]

Vrubel's issue with the CLA was a product of this existing tension between the Dunganese and the Chinese alphabets. His main point of attack was the CLA's use of five digraphic signs (*ch*, *sh*, *zh*, *rh*, and *ng*), which were not a part of the internationalist alphabet, hence its bourgeois English quality. In December, 1935, People's Commissariat for Education (Narkompros) also announced that the CLA was oriented towards the English Alphabet. Within the increasingly politicized environment, a conference was immediately put together in Moscow in March, 1936—including Xiao San, Alekseev, Dragunov, Shprintsin, Zhirkov, Laikhter, and others—to debunk the Narkompros' accusations, and keep the CLA as it was.[654] The conference participants articulated a cogent response, claiming that apart from the digraphic signs, almost all other letters were the same with the Unified Alphabet. As a matter of fact, both sides of the dispute were correct. The digraphic signs, after all, *were* coming from the Chinese "Bourgeois" Roman Alphabet, but the rest of the letters *were* from the Dunganese/Unified New Turkic Alphabet. This mix of letters did not necessarily signal a deviation from Soviet internationalism; it was rather a compromise that allowed socialist internationalism to reach beyond the USSR. Yet, since 1933, as the Soviet Union's nationality policies were losing its once-unified vision, Vrubel's critique was just one of the problems that Chinese Latinists had to face.

[653] ARAN, f. 676, op. 1, d. 1050, l. 6-15.

[654] ARAN, f. 676, op. 1., d. 874, l. 15. For the stenographic records of the conference, see f. 676, op. 1, d. 810 and 811.

The conference in 1936 provided a platform for everyone to voice their dissatisfaction with the Chinese Latinization Movement in the USSR. For Alekseev, one of the leading figures in Chinese Latinization, the new textbooks in the CLA signaled a shift towards Russification. Certain words, he claimed, were simply bad imitations of Russian, such as *shaoshzdi* 少識字的—an awkward literal translation of the Russian word for "illiterate," *malogramotnyi*, which literally stands for "little" (Ru. *malo*, Ch. *shao*) and "literate" (Ru. *gramotnyi*, Ch. *shzdi*). In the translations of foreign country and city names, Alekseev again showed dissatisfaction. Why was Paris written in the CLA as "Paris" instead of "Bali," the latter being the transcription of the Mandarin name of the city? Or why was Moscow written as "Moskva," a transcription of the Russian pronunciation, rather than "Moske," a trancription of the Mandarin pronunciation? Why "Roma" and not "Loma"?[655]

Xiao San was also confused about the new terminologies. Since 1932, he was endowed with the task of writing a Sino-Russian dictionary, but the final product was nowhere near completion. During the conference, he noted how complicated the question became in the case of the so-called "international words," such as "proletariat," "communist," or even the word "international." In some cases, he proposed, it was better to write both the "international" word and the Chinese translation/transliteration in parantheses. When writing "proletariat" in Chinese, the word "proletariat" could be followed by *uchangiegi* in brackets—a temporary solution until "international words" were established in Chinese. But in the case of other words, he could not provide solutions. Would it, for example, really be possible to write "kompartiia" (Communist

[655] V. M. Alekseev, "Voprosy napisaniia i orfografii v kitaiskoi latinizirovannoi pis'mennosti." ARAN, f. 676, op. 1, d. 1095, l. 3, 23, and 29.

Party) instead of "gungchandang"?[656] He might as well have asked, is "kompartiia" even international? What, after all, was the delineation between "international" and "Russian"?

Xiao was not even sure about the multilingual project any more, and in a generous act of self-criticism, he even admitted that Qu Qiubai was wrong in excluding the tones from the CLA. "We must choose the dialect [that represents] the masses the most," claimed Xiao, going against the resolutions of the First Conference. He continued with the following words:

> We know that the workers and toilers usually get together in the centers, in the cities of the country. Beijing is the old cultural center, and Tianjin, the center of production. In Beijing, Tianjin, and other cities of the north there is one northern speech. I think that the Chinese bourgeois Romanists, who fervently stand behind a unified state language, will not be successful, but precisely because of [one northern speech], we will succeed to a certain extent to unify the languages of the northern provinces under one northern language. This is the most common language of China. For countless times, we have tried to put Latinization at the forefront, and we said that we should divide Chinese language into five to seven groups, but the biggest group is that of the north.[657]

Probably to some Latinists' surprise, Xiao sounded like he was having second thoughts about multilingualism. To make things even more complicated for everyone involved, he ended his speech with a cryptic note about the inexpediency of the Latin alphabet itself for literary creativity:

> The last question, which might not even be on the agenda [right now], is the question of cultural language based on the new alphabet. As a writer, I especially feel the need for [addressing] this question. When I started working [on Latinization], I wanted to write a literary piece of work based on the most popular colloquial language of the people, but it was painful for me, for I could not always succeed [in writing]. This is a very difficult and complicated question. … I will talk about this more the next time."[658]

His words reflected confusion about both the practical and the literary side of the movement. Was the multilingual project feasible at all? Was it even true that an alphabet which represented

[656] ARAN, f. 656, op. 1, d. 810, l. 79.

[657] ibid., l. 78-81.

[658] ibid., l. 81.

colloquial speech necessarily gave rise to higher literary creativity? If none of this was true, what was the point of Latinization anyway?

That conference did not end on a good note, and the participants' complaints did not offer a way out. In the meantime, the literacy movement in the Far East was not faring any better either. In June, 1937, Liubin and Baum, the members of the Presidium of the Far Eastern Committee of the New Alphabet, sent an angry telegram from Khabarovsk to the Central Committee in Moscow, and stated that "from 1935 to 1937, the All-Union Central Committee of the New Alphabet has neither guided, nor helped, nor been interested in the work of the Northern and Chinese sections of the Far Eastern Committee of the New Alphabet."[659] Teachers were not enough, textbooks were not enough, print shops and typesets were not enough, and given that Xiao San never finished the compilation of the much-awaited Russo-Chinese dictionary, terminologies were never defined. According to a report written in the same year, students in the Chinese Leninist School in Vladivostok studied the CLA only during their first year, and partly in their second. There were no textbooks in the CLA for more advanced students, so they were simply studying books written in Chinese characters "to the extent that the graduates of this school forget the CLA and are not able to use it any further." What made things even worse, and even cartoon-like, was that a certain Comrade Nosov, who was supposed to teach instructors how to teach the CLA, himself did not know the alphabet.[660] As the members of the Presidium succinctly put it, "the Presidium of the DVKNA regards the works of the DVKNA in the past two years as utterly dissatisfactory."[661]

[659] ARAN, f. 967, op. 1, d. 989, l. 14.

[660] ARAN, f. 967, op. 1, d. 990, l. 18-19.

[661] ibid., l. 13.

With no support from the Central Committee, changing political waves concerning the nationalities, typographical problems, the tension between Dunganese and Chinese, and the Chinese communists' own doubts about the alphabet itself, the Chinese Latinization Movement in the USSR turned out to be a fiasco.

B) The CLA in China

Surprisingly, as the movement was losing steam in the USSR, it was gaining popularity in China, known under the name *Sin Wenz*. From 1932 onward, when the initial challenges in trypography were temporarily overcome in the Soviet Far East, there was a steady increase in the number of Latinized works. Dictionaries and propaganda materials, textbooks in Northern Mandarin, mathematics, geography, and history were published; and in the following couple of years, there was a proliferation in publications as Xiao San, Wu Yuzhang, Lin Boqu, Kolokolov, Liu Changsheng, Dragunov, Laikhter, Shprintsin, and others started translating works into the CLA.[662] From 1934 to 1936, *Sin Wenz* Research Societies (*xinwenzi yanjiuhui*) were established throughout the nation in Shanghai, Beijing, Tianjin, Guizhou, Henan, Shanxi, Guangxi, Chongqing, Sichuan, and other provinces; and with the Research Societies came primers in *Sin Wenz*, which were alarming for the KMT.[663] In November, 1934, one of them came to the attention of the KMT authorities, which narrated the history of Latinization as it developed in the Soviet Union. The exercises in the primer were also quite problematic for the KMT:

> *Exercise:* Use *Sin Wenz* to answer the questions below:
> 1) Where are the workers in the Far Eastern USSR from?
> (Answer: In the Far Eastern USSR, there are a lot of workers from the East. There are Chinese and Koreans.)
> 2) Why is the majority of Chinese working masses (*laoku dazhong*) illiterate?

[662] Haishu Ni, ibid., 34-60.

[663] Haishu Ni, ibid., 62-83.

> (Answer: Chinese characters are extremely difficult. These difficult characters can only be learned by the bourgeoisie.)
> 3) What should be done to increase the level of knowledge and education among the masses (*dazhong*)?
> (Answer: The Soviet Union develops national cultures. We use Latinization to replace the Chinese characters, for now it is easy to learn [the Latin alphabet]. … Long live Latinized Chinese Writing!)[664]

The content *and* the form, which were inseparable indeed, were distressing. In February, 1935, the Military Political Bureau (*junzheng bu*) stated that *Sin Wenz* textbooks were designed by the CCP Central Committee, and were used to train workers in the doctrines of the party. "This," the Bureau noted, "is a new turn in propaganda methods used in China. Police forces (*budui*) and military offices around the whole country must all be alert and seize [the publications]."[665]

Sin Wenz publications did not stop with that. The bi-weekly *Sin Wenz*, the first journal to be devoted to discussions on *Sin Wenz*, started publication in 1935 in Shanghai, the center of the movement in China. The number of textbooks and reference works on *Sin Wenz* was increasing, and Esperantist journals were helping further the cause.[666] The following year, the Shanghai *Sin Wenz* Research Society even published a manifesto, "Our Views on Promoting *Sin Wenz,*" signed by more than 150 famous figures, communists and non-communists, including Tao Xingzhi, Hu Yuzhi, Ai Siqi, Nie Gannu, Du Zuoyou, Ba Jin, and even Cai Yuanpei. The manifesto clearly laid out the stakes involved, and echoed the sentiments of the First Chinese Latinization Conference in 1931:

> The National Language Romanization (*gwoyeu romatzyh*) venerates the speech of Beiping as the National Language; nominally advocates the unification of the National Language, but actually it sets up a dictatorship of the Beiping speech. In the opinion of people with leisure and money, no

[664] "Xunlian zongjianbu guanyu chakou ladinghua keben shi zhi shanghai fazheng xueyuan de miling (1935.2.12)," 1935.2.12, Shanghai Municipal Archives, Q248-1-385-135.

[665] ibid.

[666] Haishu Ni, ibid.

> special effort is involved in learning Beiping speech and then using the Roman letters to read and write. But if a poor person of Shanghai or Fuzhou or Guangzhou has to study the Beiping speech and at the same time learn Romanization, that is almost as difficult as learning a foreign language. Moreover, the National Language Romanization emphasizes the indication of tones, thereby confusing the student at the beginning of his studies. What the masses need in the way of a new script is a new phonetic writing, a new writing without the nuisance of tone-indication, one that breaks away from the dictatorship of one local speech. … Right now, the Proposal for Shanghainese *Sin Wenz* has already been published by experts in Shanghai, and we look forward to criticisms. Proposals for Xiamen and Hakka speeches have been prepared, and are currently under examination here [at the Shanghai *Sin Wenz* Research Society]. Guangzhou, Fuzhou, and Huizhou speeches are being prepared.[667]

After the First Conference in Vladivostok, the left-wing manifesto was the second most significant moment in the history of Chinese Latinization. It was striking that the Latinists in Shanghai were putting the Soviet plan into action just when the movement was in jeopardy in the Soviet Union. The signatories vowed that they were going to publish higher-level textbooks, novels, journals, and newspapers in *Sin Wenz*, invent a new stenography method and even a typewriter, and carry out linguistic simplification to reach out to the masses.[668] As a testimony to the power of Latinization in China, the manifesto also indicated how the movement had evolved into something that far surpassed the USSR's and the CCP's lead. In fact, the connection between the Soviet Union and the Chinese Latinists rested especially on one figure, Xiao San, who also happened to be the one to give the Soviet Latinists the good news that multilingual work in the CLA was finally being carried out—even though he had reservations about the value of that work. Soviet Latinists were happy, and perhaps surprised, to see that the movement was indeed progressing in China, despite its gradual demise in the USSR.[669] It was clear that the success owed more to the inspiration that the Soviet Latinization Movement ignited in China

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[667] "Women duiyu tuixing xin wenzi de yijian," *Zhongguo yuyan*, no. 1 (1936), 19. I have built on DeFrancis' translation. See, DeFrancis, ibid., 118-119.

[668] "Women duiyu tuixing xin wenzi de yijian," 19. The Chinese stenography project was also a part of the Chinese Latinization Movement in the Soviet Union, spearheaded by Shchutskii. AV IVR RAN, r. 1, op. 1, d. 264.

[669] ARAN, f. 676, op. 1, d. 810, l. 50.

than to the financial and organizational support provided by the USSR in carrying it out, which, especially by 1935, amounted to nil.

The Latinists' excitement was the KMT's misery. The support that *Sin Wenz* received from the society at large attested to the fact that the movement was not simply led by the CCP —it was a social movement, which made it even more dangerous for the KMT. Secondly, the infiltration of *Sin Wenz* into multiple vernacular tongues, which the KMT was itself trying to dominate through Phonetic Symbols, posed an immediate concern, since a direct channel between anti-party intellectuals and multilingual communities could undermine the KMT's consolidation of power.

And the KMT had every right to be concerned. In 1936, *Chinese Language(s)* (*zhongguo yuyan*), a left-wing journal dedicated to *Sin Wenz*, published an article in Shanghainese written in *Sin Wenz*.[670] A *Sin Wenz* textbook in Wuxi was also ready for publication.[671] Meanwhile, *Sin Wenz* textbooks for Suzhou, Changzhou, Xiamen, Guangzhou, Yangzhou, and Sichuanese speeches were on the way.[672] Despite the technical difficulties in designating tones, *Sin Wenz* in non-Mandarin tongues was easier to print than the Phonetic Symbols. According to the KMT's order to publish in various tongues, the Chinese characters were printed along with Mandarin Phonetic Symbols on the right side and Phonetic Symbols for regional languages and dialects on the left, which posed financial and technical difficulties for the publishers.[673] In *Sin Wenz*, however, all languages and dialects were simply printed using the Latin Alphabet, and they were

[670] "Shanghai hua xin wenzi duwu," *Zhongguo yuyan*, no. 1 (1936), 16.

[671] "Z. S. V. N. jiji gongzuo," *Zhongguo yuyan*, no. 4 (1936), 22.

[672] "Minnan xin wenzi xiehui chengli: caiqu yizhi de bufa, wansui qianjin!" *Zhongguo yuyan*, no. 4 (1936), 23; "Xinshu liuben jiang zai benyue zhong chuban: xin wenzi shudian ba yue fen jihua," *Zhongguo yuyan*, no. 4 (1936), 22-23; Haishu Ni, ibid., 84.

[673] For a brief discussion of the technical problems in printing, see Jinxi Li, *Guoyu xin wenzi lun*, 22.

not complemented by Chinese characters, which facilitated the printing business to a great extent. It seemed that *Sin Wenz* was not only the shortest and the fastest route to the minds of the vernacular speakers, it was also the cheapest one.

As the reach of *Sin Wenz* kept expanding, the much-distressed Central Propaganda Bureau issued the final verdict. On April 7, 1936, the Bureau wrote a long report to the Central Standing Committee on the Latinized New Alphabet, *Sin Wenz*. The report first pointed out the larger project behind Latinization. Promoted by Leftist intellectuals, the inventors of this new alphabet claimed that the Chinese characters were too difficult to learn and read, and that they were only used by scholars and officials. According to the Leftists, "the exploitation of the scholar-officials (*shidaifu suo boxue*) must come to an end, so that the common people (*yiban dazhong*) may enjoy the merits of being literate." The Central Propaganda Bureau, however, did not agree with the rationale behind the Latin Alphabet:

> There are other reasons behind illiteracy in our country. [The reason] is certainly not the difficulty in learning Chinese characters. The evolution of a national writing system has its own historical background, which is related to the national culture. The Chinese characters that are used in our country has a glamorous history spanning thousands of years. Yet, today, [some] advocate their abolition. Wouldn't that destroy our country's native culture (*guyou wenhua*)? Besides, *Latinxua Sin Wenz* is far from perfection. From a cultural and academic perspective, it has no merits to speak of. Therefore, those who promote it do not do so for the quality of the alphabet itself; they use it as a tool of agitation. When observed closely, new publications that promote this movement and that are written in this alphabet are discovered every day. Eight or nine out of ten publications use it only in name, and hide the cunning scheme of agitating class struggle. … In order to preserve native culture, and wipe out heretical ideas, [the Central Propaganda Bureau] asks the Central Government to inform all the publishing houses to prohibit all publications that promote the *Latinxua Sin Wenz* movement, and all the books and journals written in the alphabet. From now on, only researchers with special permits in the education offices [can work on it]. These publications must not be printed again, in order to prevent disorder.[674]

[674] KMT Party History Archives, "Qudi zuoyi fenzi suo tichang lading xin wenzi yundong zhi shukan," huiyi jilu, hui5.3/10.23 (1936/4/7). 取締左傾份子所提倡拉丁新文字運動之書刊，1936/4/7, 會議記錄，會5.3/10.23. 吾國文盲眾多，另有其他原因，非由於漢字之難習。且一國文字之演進，亦自有其歷史之背景，於民族文化之關係。吾國習用之漢字，已有數千年之光榮歷史，今乃主張廢棄，不持（特？）毀滅吾國固有文化，且其所倡「拉丁化新文字」本身，極不完善。於文化學術方面，尤無神益可言。其所以以此為提倡者，並不在文字之本身，不過藉此為煽惑之工具，試觀邇來提倡此項新文字運動與以此項新文字寫作之出版品，日有發現。十之八九，不外以此為名義，陰施其煽惑階級鬥爭之詭計，如謂農工群眾，因不識漢字而受士大夫壓迫等謬論，即其一例。茲為保存固有文化，掃除邪說起見，所有提倡「拉丁化新文字」運動，與以「拉

Sin Wenz was one of the biggest obstacles in the KMT's own circuit of propaganda. Even though the Shanghai *Sin Wenz* Research Committee petitioned the Shanghai Social Affairs Bureau in 1937, and claimed that *Sin Wenz* could help promote education, and unify the illiterate masses in a short time during the war, the KMT stayed firm on its decision.[675] The only phonetic script that was officially recognized by the party was Phonetic Symbols, and during wartime, the party did all in its power to expand the influence of its phonetic alphabet and the doctrines embedded in it.

But that was not the end for *Sin Wenz.* As a matter of fact, it grew even stronger during the early years of the war, especially in the International Settlement in Shanghai and in Hong Kong, where Cantonese primers as well as Latinized primers in other Chinese languages were published.[676] Chen Heqin, the psychologist who made the first statistical frequency-analysis of Chinese characters that we have encountered in the fourth chapter, was one of the main supporters of the system, and even authored a primer for the refugees in Shanghai (in northern Mandarin).[677]

During these early years of the war, the CCP also got involved in promoting *Sin Wenz*, especially in Shaanxi-Gansu-Ningxia Border Region, but by that time the party's vision had already undergone a major transformation. The first omen of change came in 1938, when Stalin

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丁化新文字」寫作之一切書籍雜誌，擬請由中央一律予以取締並通知出版界，以後除教育當局特許研究者外，不得再印是項書刊，以遏亂萌。The report was presented to the 中央常務委員會. The final order to prohibit came in 1936, although the exact date is not clear.

[675] Shanghai Municipal Archives, Q6-18-368 (1937).

[676] DeFrancis, ibid., 120-129.

[677] Heqin Chen, "Xin wenzi yu nanmin jiaoyu" and "Minzhong keben," in *Chen Heqin quanji*, vol. 6, edited by Beijingshi jiaoyu kexue yanjiusuo (Nanjing: Jiangsu jiaoyu chubanshe, 1991), 174-179, 187-212. Chen also Latinized Lou Shiyi's Chinese translation of "A Dog of Flanders" by Marie Louis de la Ramée. See, Chen, "Kyngr kugou," ibid., 213-230.

ordered the Cyrillization of all national languages in the Soviet Union. It was not a coincidence that the order came a year after the start of the Great Purge. As mentioned in the last chapter, Latinists were the target of oppression in 1938. Renowned Turcologists were executed, and those who defended Chinese Latinization were not spared either. Pukhov (Huang Zhongzhe?), the Chinese Communist from Guangdong, was executed in 1937, and Xiao San's close friend Liubin, the member of the Presidium of the Far Eastern Committee of the New Alphabet, was arrested in 1938. Xiao San himself was not permitted to leave the Soviet Union, until he finally received permission in 1939 to go to Yan'an.[678] A year later, Xiao San and other Latinists of the Chinese Communist Party officially toned down their support for the alphabet. In 1940, a statement signed by ninety-nine people including Xiao San and Wu Yuzhang, noted the following point: "We do not at all propose to effect [*sic*] an immediate substitution of the ideographic script by the New Writing, nor to call a halt toward continued modification of the latter. … What we want to do now is to use *Sin Wenz* to teach illiterates, so that they will be able in a short time to use it to study politics and science and also the ideographs."[679] The CCP was equally uninterested in Latinizing non-Mandarin languages, thus also going against its earlier vision. The war had apparently made a huge impact even on those who were the most ardent supporters of character annihilation only a few years ago, and it forced the CCP to move closer to the KMT in terms of its linguistic vision for the nation. Undoubtedly, apart from the war, the failure of Latinization in the USSR and the subsequent Cyrillization of all languages that started in 1938 landed a blow on Chinese Latinists, whose already troubled movement lost its only

[678] Eva Siao, *Women yijian zhongqing — wo yu Xiao San*, trans. Zhu Yandong (Beijing: Zhongguo qingnian chubanshe, 2011), 59-65.

[679] Haishu Ni, *Zhongguo zi ladinghua yundong nianbiao (1605-1940)* (Shanghai: Zhongguo ladinghua shudian, 1941), 149, quoted and translated in DeFrancis, ibid., 130.

reliable example and ideological model. With the exacerbating conditions, Latinization was suspended until the establishment of the PRC, and when it finally came back in the 1950s, it appeared utterly different.

III. Conclusion

The Chinese Latin Alphabet's popularity in the 1930s was not only due to its infrastructural property. There was something about the materiality and indexicality of the Latin Alphabet itself that turned it into a desired object in times of national political oppression and transnational practices of radical social transformation. The contest between the Phonetic Symbols-cum-Chinese Characters and the Chinese Latin Alphabet was nothing less than that between two ecologies of informational existence. In the 1930s, to ponder society and politics in China was to ponder the stuff of linguistic life. A new script had the material means, even an inescapable force, to change the social relations and patterns of communication. Letters not only represented subaltern sounds, but engendered a new interface between humans and information. Letters changed the established patterns of access and retrieval, and the habitual practices of literary and scientific creativity. Dictionaries, phonebooks, codebooks, encyclopedias, library file cabinets were no longer indexed according to radicals, numbers, or other Chinese methods of access. The cognitive process of thinking through logographs was short-circuited by the new—supposedly more efficient—medium of letters. Latinization in China was nothing less than a cognitive revolution that reprogrammed the embodied and mental practices of knowledge access and production, and toppled the social hierarchy of linguistic sounds. Living with and through a new information infrastructure propeled a mental transformation—not an altered state of consciousness, but an embodied, unconscious, and unthought one that emerged out of the

phsyical infrastructures of language and knowledge. The Latinists of China embarked on a radical cognitive journey, maybe without fully realizing the gravity of its consequences, which might have either been destructive or beautiful, or perhaps both.

The striking similarity of the CLA and the nineteenth-century missionary Romanization movement is beyond doubt, and it is revealing that the center of Latinization in China from the 1930s to the early 1950s was Shanghai, the earlier hub of missionary Romanization. But given the techno-political genealogy of Chinese Latinized Letters and the ideological worldview that they embodied, the CLA in China should neither be considered as a natural extension of missionary Romanization nor as an imposition of the USSR, but as a infrastructural medium that carried a subversive political potential when the KMT's vision of the nation and the pragmatic use of Phonetic Symbols for building a propaganda network were threatening the possibility of a multilingual national life.

The proximity between the Latinization Movements in the Soviet Union and China is a reminder that the history of information and language reform in China was intimately connected to the movements taking place outside of China. But more importantly, the erased memory of this failed infrastructure prompts us to think about historical failures as possibilities, offered by the new assemblies of infrastructures and societies, technologies and humans, matter and mind.

The Chinese Latin Alphabet was a transnational product of global historical conditions, and it offered an alternative information society to China. Its light was bright in the 1930s as it became a means to represent the multilingual masses, but dimmed with the start of the war and the demise of Soviet Latinization. The war was indeed a major turning point not only for the CLA but also for the Phonetic Symbols. Wartime conditions compelled the KMT to expand and intensify the project of national linguistic unification through the Phonetic Symbols and Chinese

characters. Meanwhile, the CCP gradually stepped away from its earlier commitments to multilingualism and complete Latinization. During the 1950s, when the CCP invented *pinyin*, it turned out to be oddly different from the CLA in its material composition, and ironically similar to the Phonetic Symbols in its linguistic value. The last chapter seeks to explain what happened when the CLA died.

Chapter 9

The Empire of Pinyin

The start of the War Against Japan in 1937 was catastrophic for both Phonetic Symbols and the Chinese Latin Alphabet/*Sin Wenz* (referred to as the CLA from now on). The KMT's Phonetic Symbolization halted for almost three years, and could not pick up the momentum it had earlier. The start of the war also overlapped with the failure of the Latinization movement in the Soviet Union. In 1938, Stalin ordered to Cyrillize all nationality scripts, and the Latin Alphabet no longer occupied the global revolutionary status that it once did. It is hardly an exaggeration to claim that the death of Latinization and internationalism in the Soviet Union made an immediate impact on the aura of the CLA in China. As explained in the previous chapter, by the late 1930s, the most dedicated members of Latinization who once imagined a multilingual nation were questioning the supposed value of the Latin Alphabet. Even Xiao San, the one-time staunch defender of the CLA, lost faith both in multilingualism and in the will to annihilate the Chinese characters. As internationalist Latinization failed, and as the War Against Japan raged on Chinese soil, the priorities of reformers and revolutionaries changed significantly.

During the war, the CLA was still employed by left-wing intellectuals to print primers for non-Mandarin speeches in China, but the CCP was not interested in defending a multilingual nation any more. The CLA and Phonetic Symbols were still the physical media to imagine and form alternative information societies; but the language politics of the CCP and the KMT had converged to signify a similar national and linguistic project, i.e., the spread of Mandarin as the one and only national language. When the party ceased to support the multilingual dimension of the project, the Chinese Latinists lost their institutional pillar, and never recovered, even under the PRC.

The institutionalization of social communication engineering was on the shoulders of the KMT during wartime. As the previous chapter explained, Phonetic Symbols were the KMT's weapon during the anti-communist information warfare of the 1930s, even if the party was not particularly skillful in putting it to use. As the war turned propaganda work into a matter of life or death, Phonetic Symbols were once again employed by the KMT to engineer a communication channel between the party and the people to efficiently fight against the Japanese. But this time, the war generated the physical conditions that changed the scope of the party-state's Phonetic Symbolization Movement.

I would like to suggest in this chapter that wartime engineering was a transformative experience for the KMT, and that the wartime institutionalization of social communication engineering through script and language laid the groundwork for the PRC during the 1950s and 1960s. The CLA metamorphosed into *pinyin* in the 1950s, and *pinyin* turned out to be a Romanized copy of Phonetic Symbols that solely represented Mandarin. As such, pinyinization under the PRC was indeed as an extention of the KMT's wartime practices than of Soviet internationalism. In other words, in order to understand the historical significance of *pinyin*, we need to understand the intellectual and national transformation that came with the war.

The transformation that I emphasize throughout this chapter is the inclusion of ethnic minorities into the KMT's—and later the PRC's—social communication engineering project. Until 1937, script reform in China was solely limited to a search for efficiency for what constituted the ethno-national category of "Han." Never did the reformers speak of non-Han languages, indicating a lack of interest to consider the non-Han in imagining a nation. Prominent Chinese intellectuals since the late-Qing, some of whom worked with the KMT while keeping an arm's distance, such as Lin Yutang and Chao Yuen Ren, did not even think about the non-Han

while engineering the National Phonetic Alphabet, Phonetic Symbols, or Gwoyeu Romatzyh. Even the Chinese Communists in Moscow did not include non-Han languages in their futuristic visions of the Latin Alphabet—a notable omission given that the Latin Alphabet in the Soviet Union was entirely about ethnic minorities and nationalities. Until the war, Chinese script reform was exclusively Han.

During the war, the capital moved from Nanjing to Chongqing, coastal universities found new spots inland, and the Institute of History and Philology (IHP) relocated its headquarters to Kunming, Yunnan, in Southwestern China. The frontiers thus occupied a critical status for national security, and the new linguistic terrain that the party-state's brain power encountered in the Southwest changed the dimensions of communication engineering for propaganda purposes. Multi-ethnic frontiers were, for the first time, central to the project of alphabetization. Under the KMT, Phonetic Symbols became the medium to spread Mandarin among the ethnic minorities, either incorporating or assimilating them into the Han culture. Chinese script reforms after 1937, in other words, were intricately bound to linguistic and information management of the non-Han.

Wartime script engineering attested to the fact that mass literacy in Mandarin was inseparable from the management of information, propaganda, and national defense. Linguistic work in Han and non-Han regions, and the promotion of Phonetic Symbols across the nation were intimately connected to the KMT's anti-Japanese ideological and military struggle. Even institutional reorganization and shuffling of political figures between different ministries and bureaus were a testimony to this: Wang Shijie, the minister of education from 1933 to 1938, acted as the head of the Central Propaganda Bureau from 1939 to 1942; Chen Lifu, the one-time chief of the Central Bureau of Statistics (CBS), the KMT's first intelligence department, acted as the minister of education from 1939 to 1944; Zhu Jiahua, another chief of intelligence from the

CBS acted as the minister of education, the minister of communication, and the head of Academia Sinica during these two decades.[680] On a smaller scale, the National Language Commission brought together scholars with party officials. Li Jinxi, Wei Jiangong, Lin Yutang, and Chen Lijiang were the members of its Standing Committee together with Pan Gongzhan, the head of the Central Propaganda Bureau.[681] All of these figures, and many others, were involved in the promotion of Phonetic Symbols. This propaganda origin of Mandarin education in non-Han regions is significant to realize, for it continued under the PRC with *pinyin* during the second half of the twentieth century. The twenty-first century expansion of the Confucius Institute, a peculiar organization that is intimately linked to the Propaganda Bureau, seems to owe a lot to this deeper history.

This chapter starts with the KMT's linguistic management of its multi-ethnic frontiers. The KMT's project to engineer communication through Phonetic Symbols displayed both the party's desire to become a leviathan of information control, and its failure to become one due to infrastructural and financial weaknesses. The success and failure of the KMT became the Nationalists' gift to the Communists, who assumed power in 1949. The second section then turns to the 1950s and the invention of *pinyin* in the PRC. *Pinyin* in its material composition, I suggest, reflected a break with the past Latinization efforts. The letters of the Chinese Latin Alphabet that bespoke a revolutionary Eurasian history ceased to be the components of the PRC's information infrastructure under *pinyin*, which, like the Phonetic Symbols, only represented Mandarin and lost its rigor to replace the Chinese characters.

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[680] Pengyuan Zhang and Huaiyu Shen (eds.), *Guomin zhengfu zhiguan nianbiao (1925-1949), di yi ce* (Taibei: Academia Sinica, 1987), 186-194.

[681] Other members included linguists, folklorists, and literary figures such as Chao Yuen Ren, Wang Yi, Xiao Jialin, Gu Jiegang, Fu Sinian, Hu Shi, Xu Dishan, and the psychologists Chen Heqin and Liao Shicheng. See: Wang Ju, *Guoyu yundong de lilun yu shiji* (Taiwan: Guoyu ribao she, 1941), 103-105.

The third section goes beyond the invention of *pinyin* in 1958, which is usually taken as the landmark date for the end of script reforms in China. It is historically misleading, I would like to claim, to end the story of alphabetization in China with the invention of *pinyin* in 1958, for the simple reason that from 1958 to 1980, the PRC followed an aggressive policy of pinyinization in its multi-ethnic frontiers. *Pinyin* was not the end but the beginning of an empire that set out to Latinize the scripts of all the minority nationalities in the frontiers. As such, frontier pinyinization was surprisingly similar to nineteenth-century instrumentalization of alphabets for colonial linguistic and information management. Not unlike Alexander Melville Bell's *Visible Speech* or Ogden and Richards' Basic English, the efficiency of transcription that *pinyin* offered was consolidated by the State Council of the PRC as an instrument of linguistic domination. The PRC aspired to become the last alphabetical empire of the world.

I. Wartime Communication Engineering and Ethnic Minorities

Until the start of the war, the KMT's Phonetic Symbolization Movement reflected the party's conservative tendencies to preserve the Chinese native culture while inventing one common national language that targeted predominantly Han communities. With the relocation of the capital to Chongqing and the universities to the southwest, however, the government and the linguists' perspective on language and script work also shifted. From 1939-40 onward, the politics of ethnic minorities' languages/scripts was inseparable from that of Chinese. The government was no longer only concerned with representing Chinese languages with signs derived from Phonetic Symbols; it endeavored to create a permutation of Phonetic Symbols as an all-inclusive writing system for all languages, including non-Han languages.

The ethnic minorities' inclusion into wartime propaganda/literacy projects had indeed nominally started in 1930, with the official promulgation of the Phonetic Symbols for Mandarin. That year, the KMT separately issued another order to use Phonetic Symbols for Mongolian and Tibetan languages in order to bring the diverse linguistic communities under the party's flag.[682] The order resonated with the founder of the republic Sun Yat-sen's ideology as well. Since the last years of the Qing empire, one of the building blocks of Sun Yat-sen's republican ideology had been the "Unity of Five Races" (*wuzu gonghe*), in which the five races designated the Han, Manchus, Tibetans, Mongolians, and Muslims (a vague construction that mostly referred to the Turco-Muslims and Chinese Muslims in the northwest). Although the place of the Manchus in this ideological framework, significant during the late-Qing era, diminished in the following decades, *wuzu gonghe* remained as a strong current in the KMT's effort to unite the nation under one party. The KMT entrusted the linguistic and informational project to the Mongolian and Tibetan Commission (*mengzang weiyuanhui*), which had originally grown out of the Qing empire's *Lifanyuan*, and named as such in 1928.[683] When the Ministry of Education issued the order to use Phonetic Symbols for Tibetan and Mongolian in 1930, the Commission began working.

The KMT never sought to replace the Mongolian, Tibetan, or Turco-Muslim writing systems with Phonetic Symbols. Instead, the party-state aimed to introduce the new phonetic script as an auxiliary writing system that would help to teach Mandarin in the frontiers, and bring the non-Han linguistic communities under the party's propaganda regime. But carrying out the order for

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[682] Fuxiang Ma, "Zhunhan song mengzang gedi tuixing zhuyin fuhao banfa," *Mengzang weiyuanhui gongbao*, no. 13 (1931), 139.

[683] Qing empire's *Lifanyuan* was reorganized as the Mongolian and Tibetan Affairs Department (*mengzang shiwu chu*) under the Beiyang Government in 1913. For more information, see, Liping Wang, "Ethnicizing the Frontier: Imperial Transformation and Ethnic Confrontations in China-Inner Mongolia, 1890s-1930s," PhD dissertation, University of Chicago (2013).

Tibetan, Mongolian, and Turkic languages was even harder than phoneticizing Chinese. First of all, these ethnic populations had well-established writing systems that they had been using for long periods of time, which constituted an obstacle for the penetration of Phonetic Symbols. Secondly, there were linguistic differences among them, just like in Chinese. The transcription of these languages required linguistic standardization, which in turn required elaborate linguistic surveys and expertise, which the government found very difficult to acquire. Besides, during these two decades, the political situation in Tibet, Xinjiang, and Mongolia was uncertain at best, which made it even more difficult for both the linguists and the party-state to carry out the plan for Phonetic Symbols in the frontiers. From 1930 to the start of the war in 1937, Phonetic Symbols in the frontiers remained simply as an order that was never carried out.

Languages of ethnic minorities remained marginal even to pure academic work. Most of the philological and linguistic research during the war was undertaken by the Academia Sinica's Institute of History and Philology (IHP), established in 1928 to create a national scholarship that rivaled Western Sinology. The IHP was at first composed of a handful of researchers: Fu Sinian, Chao Yuen Ren, Luo Changpei, Li Fanggui, Chen Yinke, and Li Ji, all of whom, except Luo Changpei, had received degrees in Europe or the United States.[684] Right after the Institute was established, Luo Changpei quickly devised an ambitious plan to undertake dialectological surveys, and to complement linguistic studies with historical research on phonology. According to the original plan he drafted, five groups were going to be dispatched in February, 1929, to Guangzhou, Siyi (southern Guangdong), Chaomei (eastern Guangdong), Minnan, and Hainan Island. Then in the summer of 1929, Luo wanted to dispatch nine more groups to Fuzhou, Wenzhou, Ningbo, Jiangxi, Guilin, and Cangwu (Guangxi), and to the ethnic minority regions of

[684] Fang-Kuei Li, *Linguistics East and West: American Indian, Sino-Tibetan, and Thai*, interviews conducted by Ning-Ping Chan and Randy LaPolla (University of California, 1988), 43.

Zhuang, Yao, Lolo, and Miao.[685] When the surveys were first undertaken in 1929, however, they were much more modest in scope. Chao Yuen Ren surveyed twenty-two places in Guangdong and Guangxi, and apart from vernacular speeches, he also recorded Yao folk songs from a speaker of Yao.[686] The same year, Li Fanggui surveyed the Li 黎 language in Hainan together with the local Han speech.[687] Mapping out the ethnic minority languages was not the primary purpose of the IHP.

In 1939, however, linguistic work in the frontiers was an urgent matter of national security. The IHP moved to Kunming due to war, and encountered dozens of smaller ethnic populations with different languages and writing systems in Yunnan and the surrounding provinces in the southwest. During the 1940s, Li Fanggui, Luo Changpei, and others conducted linguistic surveys in non-Han regions on diverse languages such as Zhuang, Yi, Lolo, Sani, Lisu, Mexie, and Maru.[688] Of immediate concern in the 1940s, was the KMT's desire to engineer a social communication network, and given the linguistic diversity combined with the lack of infrastructure in the frontiers, the project to implement Phonetic Symbols became even more complicated than before.

With the war raging, the exact language/script policy to be carried out in the frontiers was never well-defined. On the one hand, there were scholars like Fu Sinian, the head of the IHP, who advocated Sinicization (*hanhua*). Fu Sinian, in a letter to the famed geographer Gu Jiegang,

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[685] Academia Sinica Insitute of History and Philology Archives (lishi yuyan yanjiusuo cangpin), 元122-2: Luo Changpei to Fu Mengzhen, 1928/11/6.

[686] Chao Yuen Ren, *Linguistic Essays by Yuenren Chao* (Beijing: The Commercial Press, 2006), 975.

[687] Shifeng Yang, "Yuyan diaocha yu yuyin shiyan," *Fu suozhang jinian tekan* (Taipei: Academia Sinica Institute of History and Philology, 1951), 27-28.

[688] Changpei Luo, "Yuyanxue zai yunnan," in Luo Changpei, *Yuyan yu wenhua* (Beijing: Beijing chubanshe, 2004), 200-220.

wrote of his worries for the future of the nation. In Siam, noted Fu, a strong Japanese propaganda was under way, disseminating the idea that Guizhou and Yunnan were the birth-place of the Thai people. In Myanmar, British were winning over the minds of the *tusi* from the mainland, and disseminating missionary propaganda among Chinese laborers, recruited in large numbers. "All my life, I said that the Chinese nation (*zhonghua minzu*) is one,'" wrote Fu, "but in these circumstances, I secretly have worries; and when I came to western [China], my worries became even deeper." As the head of the Institute of History and Philology, the antidote to his worries was linguistic: "By prohibiting the Han people from invading the [lands of the] non-Han people by force, but [instead] making them accelerate Sinicization (*hanhua*), and putting an end to the use of all non-Han writing systems, [we can] implement a Han national consciousness (*hanzu zhi yishi*) in a short amount of time. This is the correct path."[689]

Fu Sinian's assimilationist doctrine did not resonate with everyone.[690] Wu Zhihui and Li Jinxi, still the leading figures in the National Language Commission, were in favor of keeping the existing writing systems while promoting Mandarin through Phonetic Symbols, although they were not quite sure about how to carry it out. Nevertheless, Wu Zhihui had more influence over party politics than Fu Sinian, given that the former was the head of the National Language Commission. In April 1941, the Highest Commission of the Ministry of National Defense held a meeting, where Wu presented a report along with a large number of published materials in characters and Phonetic Symbols. The report was signed by eleven more people, including the minister of education and the earlier chief of the Central Bureau of Statistics (CBS) Chen Lifu,

[689] Sinian Fu, "Zhi Gu Jiegang (1939)," in Ouyang Zhesheng (ed.), *Fu Sinian Quanji*, vol. 7 (Hunan jiaoyu chubanshe, 2003), 205.

[690] There were others, such as Ma Yi, who agreed with Fu Sinian, and proposed that Mongolians, Tibetans, Turco-Muslims, and Miao should all be assimilated through only using Chinese language and writing. See, Yi Ma, "Miao Yi jiaoyu zhi jiantao yu jianyi," *Xinan bianjiang*, no. 7 (1940), 30.

another director of the CBS and the head of Academia Sinica Zhu Jiahua 朱家驊, the Chief Secretary (*mishu zhang*) of the Highest Commission Wang Chonghui 王寵惠, the head of the Central Propaganda Bureau's Cultural Movement Commission Zhang Daofan 張道藩, and other leading members of the Highest Commission and the party.[691]

The report also proudly announced the National Language Commission's work to represent all national speeches with Phonetic Symbols, which, once completed, was going to aid the party to reach every linguistic community in China. Wu Zhihui had begun working on this project a year ago, in October 1940, when he brought together famous names to form the Commission for the Revision of Phonetic Symbols for National Local Speeches (*quanguo fangyin zhuyin fuhao xiuding weiyuanhui*). Composed of Wei Jiangong, Li Jinxi, Chao Yuen Ren, Lin Yutang, Wang Yi, Li Fanggui, Luo Changpei, Zhou Bianming, and Wang Li, the principle duty of the Commission was to devise an all-inclusive alphabet for all speeches, which culminated in the "All-Nation Phonetic Symbols Chart for Local Speeches (*quanguo fangyin zhuyin fuhao zongbiao*)" in 1943 —an infotopia that sought to bring together all languages under heaven, or at least under the Chinese skies, and engineer a communication network that encompassed all under one party.[692]

During the meeting of the Highest Commission in 1941, the report's signatories all believed that the publication of more materials with Phonetic Symbols would have an enormous propaganda effect. The report thus noted the need to order each propaganda office to add Phonetic Symbols to all booklets distributed to the people and soldiers, and each press to print

[691] The other signatories were Liu Wendao 劉文島, Li Wenfan 李文範, Wang Zizhuang 王子壯, and Cheng Tianfang 程天放. 014000000267A: 行政院：中國國名黨五屆八中全會會議案（五）, 014-000400-0036-012.

[692] Second Historical Archives of China, jiaoyu bu, 5-12295(3), 10/1941-11/1948. Not all of these names were in China at the time. Chao Yuen Ren and Lin Yutang were in the USA.

Phonetic Symbols for all the daily newspapers and other publications. It also demanded that the periodicals that were specifically issued by the Ministry of Education must be published in high numbers so that they could reach every household; that popular publications and childrens' books issued by the Ministry of Education should also have Phonetic Symbols; that each education bureau in every province, city, and district should have the copper molds for Phonetic Symbols; and that these education bureaus should lend them to the print presses to expand its use.[693]

In 1942, Chen Lifu ordered every city to purchase a set of copper molds for Phonetic Symbols, and noted that the ministry was going to provide the necessary matrices for those places that had special dialects, as listed in the "All-Nation Phonetic Symbols Chart for Local Speeches," which the National Language Commission was working on. All offices were ordered to publish their materials and slogans in Phonetic Symbols; and if they did not have the means to print, then they were ordered to handwrite them. Realizing the need to include the ethnic minorities within the party's network, the ministry also ordered all offices to change the phrase "Chinese Characters with Phonetic Symbols" (*zhuyin hanzi*) to "National Characters with Phonetic Symbols" (*zhuyin guozi*), so as to downplay Han chauvinism, and ordered the National Language Commission to standardize Mandarin education in the frontiers as well.[694]

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[693] ibid. Since the capital moved to Chongqing in 1939, the Military Affairs Commission had already been working on publishing materials with Phonetic Symbols, some of which were printed *only* with Phonetic Symbols *without* Chinese characters. See, KMT Party History Archives, "Zhuyin fuhao congshu (kangzhan gushi)," *yiban dang'an, yiban*537/46. A particular book in this collection printed solely in Phonetic Symbols is "Kangzhan liangnian shouhuo (zhuyin fuhao congshu di sishi zhong)," published by Junshi weiyuanhui houfang qinwubu zhenzhibu bianyin. Also see, Jin'en Yu, *Minguo zhuyin zimu zhengce shilun* (Beijing: Zhonghua shuju, 2007), 261.

[694] AH, 014000000267A, Xingzhenyuan, "Zhongguo guomindang wujie ba zhong quanhui huiyi an (5)," 014-000400-0036-015 to 020, and 025. The same year, under the leadership of Chen Lifu, a new commission was formed: Central Phonetic Literacy Movement Commission (*zhongyang tuixing zhuyin shizi yundong weiyuanhui*), whose duty was to prepare and carry out the plan for expanding phonetic literacy (*zhuyin shizi*). As opposed to the National Language Commission or the Cultural Movement Commission, which were under the administration of the Ministry of Education and the Central Propaganda Bureau, respectively, the new commission was formed through the participation of different bureaus: Central Propaganda Bureau, Central Overseas Bureau, Central Training Commission, Three Peoples Principles Youth Corps, Military Affairs Commission Political Bureau, Mongolian and Tibetan Affairs Commission, Overseas Chinese Commission, Ministry of Social Affairs, and Ministry of Education.

Even though the inclusion of the ethnic minorities into a propaganda regime governed by Mandarin was central to party politics during the war, success was hard to achieve, and progress very slow. The All-Nation Phonetic Symbols Chart for Local Speeches is a case in point. Written in 1943, the chart was supposedly a set of Phonetic Symbols that could represent all the linguistic sounds of the nation. In theory, it was very similar to the USSR's All-Union Cyrillic Alphabet. When Stalin put a halt to Latinization in the Soviet Union in 1938-39, and decided to Cyrillize all the national alphabets overnight, the end result was a linguistic infrastructure that was made out of an enlarged set of Cyrillic letters, graphic derivatives of the Russian Cyrillic Alphabet, invented for non-Russian linguistic sounds. Much like the Soviet example, the KMT's new set of Phonetic Symbols was a sort of "Chinese Intranational Alphabet." At least, that was the ambition.

In reality, the title of the All-Nation Phonetic Symbols Chart was deceptive. Even though the objective was to invent a more inclusive linguistic infrastructure for the sounds of the entire nation (*quanguo*), the chart represented very little beyond the main Han territories. The only non-Han "sounds" that the chart included came from Lhasa and the Hakka (without a designation of locale). Xinjiang, Mongolian, and even Yunnanese sounds were not part of the Phonetic Symbols Chart.[695] It is surprising that an All-Nation Phonetic Symbols Chart by and large left out the non-Han territories, especially when most of the linguistic work was taking place in Yunnan, the most ethnically-diverse region in China.

The reason, at least according to Li Jinxi, was the inability and/or unwillingness to translate expert knowledge to applied linguistic policy. When the list of the All-Nation Phonetic Symbols

[695] Number Two Archives, Jiaoyu bu, 5-12300 (4). The list of the places mentioned in the chart is as follows: Suzhou, Songjiang, Changsha, Nantong, Xian, Xiamen, Guangzhou, Tengzhou, Taishan, Taixing, Beiping, Tianjin, Fuzhou, Nanjing, Chongqing, Nanzheng, Lhasa, Xianyang, Liling, Chengdu, Baoding, Hechuan, Linzi, "Hakka," Ningbo, Wuchang, Yuyao, Changre, Huangling, Guihua, Hefei, Wujiang, Changzhou, and Wenzhou.

Chart was devised, the members of the Commission for the Revision of Phonetic Symbols came together with representatives of the Phonetic Literacy Commission in Chongqing to discuss the steps to be taken for the unification of language, especially in the frontiers. In this meeting, when the linguists Wu Zhihui, Li Jinxi, Li Fanggui, Xiao Jialin, He Rong, and Fu Sininan discussed the future of education with government officials, Li Jinxi took the floor to talk about the accomplishments thus far.[696] Although the literacy movement was successful in the past years, claimed Li, no advance was made in the frontiers. They were receiving petitions from distant officials who reported that they neither had enough materials nor manpower to promote literacy.[697] The governmental support and linguistic expertise notwithstanding, the movement was extremely weak in the frontiers, especially in the ethnic minority regions. Li Jinxi put the blame especially on experts (*zhuanjia*), whose works focused so much on academic scholarship that they did not come up with real solutions to the language/script problem in hand.[698]

Li Jinxi was partly correct, but there were greater problems that inhibited the linguists from representing the local sounds of the entire nation. While linguists were cooperating with the government in the Southwest, neither the party-state nor the linguists could penetrate into other parts of the country, especially into Tibet, Inner Mongolia, and Xinjiang, mostly due to infrastructural and political problems. Tibet was almost out of reach, both geographically and politically, and Inner Mongolia was under Japanese influence since the 1930s.[699] Only in Xinjiang, despite the heavy Russian influence, did the KMT still have nominal control, and in

[696] Number Two Archives, Jiaoyu bu, 5－134 (3/1941-5/1946).

[697] Number Two Archives, Jiaoyu bu, 5－12289 (12/1943-8/1948), 5-7.

[698] Number Two Archives, Jiaoyu bu, 5－134 (3/1941-5/1946), 114.

[699] Hsiao-Ting Lin, *Modern China's Ethnic Frontiers: A Journey to the West* (New York: Routledge, 2011), 54-72.

1938, the government subsidized a project to use Phonetic Symbols for Uyghur. Zhengzhong Press, one of KMT's wartime allies, published Xu Xihua's *List of Frequently-Used Uyghur Words with Phonetic Symbols*. Xu's work was one of the peculiar specimens in Turkic linguistics under the KMT, and its goal was "to unify the nations, make the republic, strengthen national defense, and revive the nation."[700] He had prepared a draft of an Uyghur-Mandarin dictionary a year earlier, and in writing his book, he consulted with Chao Yuen Ren as well as Masud Sabri and Isa Yusuf Alptekin, anti-communist Uyghur politicians who allied with the KMT, to represent the Ili and Altishahr dialects in Phonetic Symbols. Not surprisingly, Xu undertook his work with the support of Shao Lizi 邵力子, the head of the Central Propaganda Bureau, and Chen Lifu.

As the example of *Uyghur Phonetic Symbols* indicates, the party was keen to permeate into the society in Xinjiang, but its reach was, again, not deep at all. The educational infrastructure — the number of schools, teachers, and printed materials— was not strong enough to expedite the transmission of party-endorsed information to the frontiers. Moreover, the Uyghur Phonetic Symbols were technically insufficient, and phonetically wrong. Even though Xu claimed to have consulted Chao Yuen Ren and prominent Uyghur leaders, his Uyghur Phonetic Symbols were an exact copy of the Mandarin Phonetic Symbols, hence the incompatibility.

With the illusory success of Uyghur Phonetic Symbols, Li Jinxi designed a new plan for textbooks, which would be written in two languages (Mandarin and local language) and three scripts (Chinese characters, Phonetic Symbols, and local script). A prototype for Uyghur was published in 1941 in *Mongolian and Tibetan Monthly Journal*, but it remained only as a

[700] Xihua Xu, *Zhuyin xinjiang huiwen changyong zibiao* (Kunming: Zhengzhong shuju, 1938), 10.

prototype, and not a particularly successful one.[701] Prospects were even worse for other regions. Phonetic Symbols for Tibetan and Mongolian did not even exist, and neither was there serious progress in the Southwest. Speaking at a meeting in 1943, Ma Xueliang, an ethnologist and linguist working in the southwest, noted the physical difficulties of working in the region. The geographical terrain posed hardships, and overcoming linguistic differences to communicate with local people proved to be more laborious than imagined.[702] As the war was closing to an end, there were not any Phonetic Symbol textbooks for any of the languages.[703] Writing in as late as 1947, Li jinxi noted that quadricolumnar textbooks were still not published for frontier languages. Chinese-Uyghur textbook, just like the *Uyghur Phonetic Symbols*, remained as an isolated example that demonstrated the government's willingness as well as its failure to

[701] This prototype occupied even more space than the quadricolumnar textbooks, for it included two more columns: one for Romanized Mandarin, and one for Romanized Uyghur. Even the vice-minister of education Gu Yuxiu 顧毓琇 was against its use. he noted the unfeasibility of teaching the local population Mandarin and Chinese characters through Phonetic Symbols. First of all, the government, wrote Gu, lacked resources to dispatch a sufficient number of teachers to southern Xinjiang, who could teach Phonetic Symbols, Chinese language, and characters. Secondly, introducing Phonetic Symbols was neither easy nor necessary, said Gu, for the Uyghurs had their own Arabic writing system, which could be used to transcribe Chinese characters, and facilitate learning. Jinxi Li, "Kaifa bianjiang de di yi jian shi," *Meng-zang yuebao*, vol. 13, no. 10 (1941), 10. For a short obituary on Gu Yuxiu, see, http://www.upenn.edu/gazette/0303/0303obits.html (accessed online, March 1, 2016).

[702] "Bianjiang zizhi yu wenhua: benkan bianjiang wenti zuotan hui jilu," *Bianzheng gonglun*, vol. 6, no. 2 (1947), 5-6. Despite the lack of Phonetic Symbols textbooks, Mandarin education continued in the frontiers. Fu Sinian's assimilationist doctrine was *de facto* carried out.

[703] Li Jinxi, "Guoyu bianyu duizhao," 3. An even more isolated example was the Miao Phonetic Symbols, which was invented by an Australian missionary, Maurice Hutton, in the 1920s, but there is no evidence which suggests that Hutton's scheme was used by the government. See, Guisheng Wang, "Qiandongnan lao miaowen de lishi ji xianzhuang de diaocha he yanjiu," *Kaili xueyuan xuebao*, vol. 28, no. 5 (Oct., 2010), 53-59. For all the non-Han linguistic communities concerned, the biggest problem was the Chinese characters themselves, even though only a few Chinese intellectuals and government officials acknowledged the elephant in the room. Chen Guangyao, the famous name in the character simplification project that we have seen in the fourth chapter, was one of the few who recognized the difficulty posed by characters, and still defended the simplification of characters in order to educate the frontier populations. Chen's proposal fell on deaf ears, however, for simplification was already out of the KMT's radar. See, Guangyao Chen, "Jianshe xibei bi xian tongyi yuwen," *Sanmin zhuyi banyuekan*, vol. 2, no. 10 (1943), 16-17. Chen earlier wanted to support the partification of education through his idiosyncratic simplified characters. See: Guangyao Chen, *Jianzi lunji* (Shanghai: Commercial Press, 1931), 51-53.

incorporate ethnic minority languages into a party-governed information circuit.[704] When the party had minimal knowledge concerning ethnic minority languages, it was perhaps not surprising to have an "All-Nation Phonetic Symbols Chart" that covered only half of the national geography.

Even with the National Language Commission's relentless efforts to create an accurate linguistic map of China, the Ministry of Education's constant work to expand literacy in Mandarin, and the Ministry of National Defense's recognition of the value of this linguistic work for propaganda and national security, Phonetic Symbols never helped conquer the hearts and minds of the ethnic minorities. When even publications in Mandarin Phonetic Symbols were limited in number and circulation, the state penetrated neither the non-Mandarin nor the non-Han communities as much as it had hoped for. When the KMT lost the Civil War and relocated to Taiwan in 1949, and took Phonetic Symbols with it, communication engineering in mainland was still unresolved. And the People's Republic of China inherited the complexity.

II. *Pinyin*

The Chinese Latin Alphabet, as I have argued in former chapters, was the transnational product of a global historical moment that wired, or at least sought to wire, China to the Soviet Union and beyond. From its inception as the Dunganese Latin Alphabet in 1928 and its transformation into the Chinese Latin Alphabet in 1931 to its popularization in China in 1935-36, the CLA promised hope for a multilingual imagining of the nation. As the Latinization

[704] Xinjiang occupied a special place. According to the statistics from 1946, Xinjiang had the highest number of primary schools among all the frontier provinces. With 2,850, Xinjiang ranked first. The next was Guangxi with 752 primary schools, and Guizhou with 692. Then the numbers fell down to 162 in Taiwan, 141 in Gansu, and less in other provinces. The percentage of children attending school was also high in Xinjiang with 50.3%, including Uyghurs, Kazakhs, Mongols, Manchus, and Kyrgyz. The only frontier province that had a higher minority education rate was Taiwan with 83.3% among Gaoshan. See, Jiahua Zhu, *Bianjiang jiaoyu gaikuang* (Jiaoyu bu bianjiang jiaoyu si, 1947), 117, 130.

movement in the Soviet Union lost power and was eventually replaced in 1938 by the All-Union Cyrillization, highly undergirded by Russification, and as China plunged into a catastrophic war around the same years, the Chinese Latinists' devotion to the former alphabetical promises started to dwindle as well. In 1940, as I have quoted earlier, the once-passionate Latinists in the Soviet Union, including Wu Yuzhang and Xiao San, announced that "[they did] not at all propose to affect an immediate substitution of the ideographic script by the New Writing, nor to call a halt toward continued modification of the latter."[705] By then, revolutionary informatics had already come to an end. By the end of the war, then, the CCP and the KMT both converged in their politics of language and script. Even though the latter was committed to Phonetic Symbols and the former to the Latin Alphabet, none advocated the elimination of the Chinese characters. When the People's Republic of China was formed in October 1949, the party line about the script was more or less clear. The Chinese Latin Alphabet had lived fast and died young.

Regardless of the party line, however, the CLA immediately reclaimed the land in places that it used to enjoy popularity in the 1930s. The proposals for writing different vernacular languages in the Latin Alphabet were once again crystallizing. In January, 1950, a certain Li Yuanbu drafted a proposal for Changshu speech; Zhejiang University New Language Research Committee wrote one for Zhejiang speech; and in February, the main publication for promoting the CLA/Sin Wenz, *Sin Wenz Weekly* (*sin wenz zhoukan*), collated Latin Alphabets concocted for seven different local speeches. In the same month, *Xiamen Speech Sin Wenz* was prepared, and published in May.[706] In March, a primer for workers was published in Jiangnan speech, and the

[705] Haishu Ni, *Zhongguo zi ladinghua yundong nianbiao (1605-1940)* (Shanghai: Zhongguo ladinghua shudian, 1941), 149, quoted and translated in DeFrancis, ibid., 130.

[706] Haishu Ni, *Ladinghua xin wenzi yundong biannian jishi*, vol. 2 (Beijing: Zhongguo renmin daxue yuyan wenzi yanjiusuo, 1979), 274-288.

following month, booklets for Northern, Jiangnan, and Cantonese speeches were printed by The Eastern Bookstore Press (*dongfang shudian*).[707] In 1952, a primer for Shanghainese was also prepared by Ni Haishu, the chronicler of the Chinese Latinization Movement.[708] It was a moment of unexpected—but, as the later years would prove, ephemeral—energy that brought back the memories of not only the 1930s but even the late-Qing multilingual reformers. By the mid-1950s, there were around 1200 different script proposals from all around China, based on Latin and non-Latin alphabets.[709] Luo Changpei, for instance, endorsed the late-Qing polymath Lao Naixuan's project to represent each vernacular language in China, while noting that his own opinions about the issue were not "ripe yet."[710]

In February 1952, Chinese Script Reform Research Commission (*zhongguo wenzi gaige yanjiu weiyuanhui*) was officially established in Beijing under the State Council, comprised of a complicated mix of reformers. Wu Yuzhang, once a steadfast Latinist, was now working with former linguists who worked under the KMT, such as Luo Changpei, Li Jinxi, Wei Jiangong, and others. None of these figures, including others such as Lu Zhiwei, ever wanted to uproot Chinese characters in the past decades.[711] In the following years, the team of reformers came to include erstwhile enemies. In December 1954, for instance, the State Council ordered Ye Laishi and Nie Gannu to become members of the Commission, and work with Li Jinxi.[712] During the 1930s, Ye

[707] ibid., 296.

[708] Haishu Ni, *Shanghai yin pinyin shizi keben — shongxein pinyin seqsh ku ben* (Shanghai: Dongfang shudian chubanshe, 1952).

[709] Haishu Ni, *Ladinghua xin wenzi yundong biannian jishi,* 396.

[710] Changpei Luo, "Zhongguo yuyanxue de xin fangxiang," *Xin jianshe*, vol. 1, no. 12 (1950), quoted in ni haishu, vol. 2, 286-7.

[711] Ni, ibid., 372.

[712] "Zhongguo wenzi gaige weiyuanhui chengli," in *Zhongguo yuwen*, vol. 31 (Jan. 1955), 38.

Laishi was a famed Esperantist and Latinist whom Li Jinxi abhorred. Li had commented on the Latinization movement with the following words: "Recently, also in Shanghai, people are often eating 'pudding,' bought with rubles and given to Manager Leprous (*laitou jingli* 癩頭經理)." The "pudding" bought by Russian rubles were written in Latinized letters by Li, as a demeaning remark on the CLA; and "Manager Leprous" was a pun on the Chinese character *lai* 籟, which referred to Ye Laishi 葉籟士 himself.[713]

Neither was Li Jinxi the most beloved figure in the Commission. Nie Gannu, also a Latinist in the 1930s, had written a severe critique of Li's *A Historical Outline of the National Language Movement*. According to Li's narrative, the problem of the script was a technical one that the Phonetic Symbols and *Gwoyeu Romatzyh* succeeded in overcoming, as opposed to the CLA which was a technically insufficient "political" project. Nie, in response, pointed out the hypocrisy in emphasizing the technical merits of one script, while consciously and cleverly concealing its politics. For Nie, after all, every script was political.[714] Two decades later, all of these reformers had to work together to come up with a plan for the PRC. If we had access to State Council Archives, I am certain that we would read about debates that were as antagonistic as the first conference on National Pronunciation in 1913.

Our lack of evidence about the debates aside, the Commission laid out a definitive plan for the future of the PRC's scripts and languages. Wu Yuzhang, who was appointed the head of the Commission (renamed as "Chinese Script Reform Commission") in 1954 by the State Council, announced that Northern Speech (*beifanghua*) would be the unifying language of the nation, and even if local people could still use the CLA/*Sin Wenz* to write their own tongues, they would not

[713] Gan Nu, "Zhongguo xin wenzi ne? Guoyu luomazi ne?" *Zhongguo yuyan*, no. 1 (1936), 4-5.

[714] ibid.

be supported by the state.[715] It was a significant statement, for it showed that the government was not willing to allocate resources for the teaching of local languages. In 1955, Shanghai Script Reform Society was closed down, and their archives were transferred to Beijing, which became the sole center of script and language reform from then on. With the only place devoted to multilingual representation shut down, and no official support for local languages, the fate of multilingual national imagination was most definitely sealed. When *pinyin* was finalized in 1958, it was merely a Latinized version of the Phonetic Symbols of Mandarin.[716] As a matter of fact, until the finalization of *pinyin*, major literacy campaigns were undertaken through the use of Mandarin Phonetic Symbols.[717]

The same year, the Commission also made it clear that complete alphabetization was almost indefinitely postponed. Its yearly plan included the invention of *pinyin* and the simplification of characters, which as will be recalled was curtailed by the KMT in 1936. The Commission thus established two research labs for the purpose: the first one, "Research Room for Pinyinization" (*pinyinhua yanjiushi*), was run by Zhou Youguang, whose life and thoughts will be expounded on below; and the second one, "Research Room for the Simplification of Chinese Characters" (*hanzi jianhua yanjiushi*), by Cao Bohan.[718]

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[715] Wu Yuzhang, "Wu Yuzhang wei wusi jinian ladinghua xin wenzi yundong," *Guangming ribao*, May 4, 1950, quoted in Ni, ibid., 299-300.

[716] *Hanyu pinyin fang'an* (Beijing: Wenzi gaige chubanshe, 1958), 1.

[717] The major name in Mandarin literacy campaigns using the Phonetic Symbols was Qi Jianhua, whose work in the Southwest was endorsed by the Propaganda Bureau. See: Jianhua Qi, *Sucheng shizi fa shi zenyang chuangzao chulaide* (Shenyang: Dongbei renmin chubanshe, 1952); Zhongyang renmin zhengfu renmin geming junshi weiyuanhui zong zhengzhibu xuanchuanbu, *Jieshao "Sucheng shizi fa"* (Shenyang: Dongbei renmin chubanshe, 1952); *Sucheng shizifa jiaoxue shouce* (Shanghai: Huadong renmin chubanshe, 1952).

[718] Youguang Zhou, *Zhou Youguang baisui koushu*, transcribed by Li Huaiyu (Guilin: Guangxi shifan daxue chubanshe, 2008), 111.

Zhou Youguang, the foremost name in the invention of *pinyin*, was formerly an economist in New York and London. In 1949, following the optimistic wave of liberation, he returned to Shanghai, and started working at Xinhua Bank and teaching at Shanghai University of Finance and Economics. According to his recollections, he was interested in script reforms since the 1930s, and had made acquaintances in the reform community with people like Ye Laishi and Ni Haishu. In the 1950s, he immediately got involved in the debates, and was working closely with Ni Haishu, who ran the Shangai Script Reform Society. Initially, Zhou was also interested in representing all the speeches in China, but he considered the alphabets invented for different speeches to be too confusing, because the same letters had completely different phonetic values in different speeches. At first, he wanted to invent a common alphabet for all speeches, but following the change of national policy, he embarked on the project to invent *pinyin* for Mandarin.[719] In 2015, I had a very brief encounter with Zhou Youguang, who was then 109 years old. When I asked him what the purpose of *pinyin* was, he told me that it was never meant to replace Chinese characters.[720] His writings in the 1950s were a testimony to this statement. Chinese characters, Zhou noted then, gave a conceptual unity to China. The characters for Marx (*makesi* 馬克思), for instance, were *visually* intelligible to anyone in the South, but when a northern speaker went down and *spoke* of Marx in the 1950s, people kept asking who this mysterious *Ma-ke-si* was, since the pronunciation of the characters 馬克思 could show great

[719] Youguang Zhou, *Zhou Youguang bainian koushu: wo suo duguo de shiguang* (Hong Kong: The Chinese University of Hong Kong, 2015), 297-303.

[720] Interview with Zhou Youguang, July 4, 2015.

variance across linguistic regions. For the time being, *pinyin* as an auxiliary writing system was the only solution.[721]

It is hard to determine what went on behind closed doors in the creation of *pinyin*, which turned out to be very different from the CLA devised in Moscow and Vladivostok in the 1930s. When the PRC was founded in 1949, one of the big debates that took place was about the "nationalist form (*minzu xingshi*)" that the Chinese phonetic script was supposed to represent. Purportedly, when Mao visited Moscow and inquired into Stalin's views about Chinese phoneticization, Stalin told him that China must have a script that is nationalist in form. Partly due to Mao's demands, and partly because of a greater nationalist tide after decolonization, the Commission received dozens of script proposals that claimed to be nationalist in form. Under the influence of Soviet experts, some even argued for the adoption of a Cyrillic alphabet, although it is hard to see how that could possibly be the "national form" for a recently decolonized China. When Zhou Youguang started working in the Commission in 1955, the earlier fervor had already left its place to favoring the Latin alphabet over other proposals. Still, however, the final product was significantly different from the CLA. Some letters were assigned new phonetic values, such as the letters "x" or "j," and new letters were added to replace the CLA's predominance, such as "q" and "ü." Zhou Youguang and his pinyinist comrades Ye Laishi and Lu Zhiwei most likely wanted to put a distance between the internationalism of the 1930s and the national liberation of the 1950s.[722]

[721] Youguang Zhou, "Ladinghua yundong de renwu he fangxiang," in *Xin wenzi zhoukan*, no. 3 (June, 1950), quoted in Ni, ibid., 320.

[722] Youguang Zhou, *Zhou Youguang bainian koushu: wo suo duguo de shiguang* (Hong Kong: The Chinese University of Hong Kong, 2015), 306-308.

While he was inventing *pinyin*, Zhou was directly involved in the effort to use the new alphabet for telegraphic communication. As the first chapter has shown, the information infrastructure that telegraphy established worldwide was one of the main catalyzers of phoneticization in China. In the 1920s and 1930s, KMT engineers had tried to use Phonetic Symbols for telegraphic communication, but given the lack of national linguistic unity and the technical problems caused by the four tones of Mandarin, the project had never achieved fruition.[723] In the 1950s, Zhou Youguang took up from where the KMT left off, and tried to use *pinyin* as the main code of transmission.[724] Even though his project also failed in the end due to similar reasons, his involvement in telegraphic code-engineering should not be overlooked as an important component in the invention of *pinyin*. As a matter of fact, one of the main reasons that *pinyin* took the shape it did was the Ministry of Postal Service and Telecommunications' resistance to an earlier draft that had letters such as *ƶ, ŋ, ʂ, ʐ, ɥ*, and others.[725] These stand-alone letters, instead of digraphs, were created at the insistence of the Institute of Linguistics at the Chinese Academy of Sciences, which demanded that each sound should be represented with one letter only. Yet, the Ministry refused to accept them, since these letters did not lend themselves easily to the Morse Code. When *pinyin* was finalized in 1958, stand-alone letters were not part of it.

Zhou's work with machines and scripts was conducive to his thought about mental labor as well. Reminiscent of late-Qing and Republican efforts to optimize mental labor, Zhou preliminarily outlined a Marxist grammatology that fused machines, scripts, and labor into one

[723] *Jiaotong bu guiding guoyin dianbao huibian (fu guoyin dianbao fashi)* (May, 1928).

[724] Youguang Zhou, *Dianbao pinyinhua [Pinyin-ization of the Telegraph]* (Beijing: Wenzi gaige chubanshe, 1965).

[725] Youguang Zhou, *Zhou Youguang bainian koushu*, 309-311; *Youguang Zhou, Hanzi gaige gailun* (Beijing: Wenzi gaige chubanshe, 1961), 133-141.

another. During the "second industrial revolution," wrote Zhou, which referred to the early phases of computerization, mental/cerebral labor's (*naoli laodong*) mechanization, automation, and acceleration were reaching unprecedented levels. Electronic calculators had not only become the scientists' instrument for research, but also started to enter industrial, agricultural, and administrative institutions, and into automatically-controlled production, management, accounting, statistics, books, archives, and all related work. "If script work is at the center of the mechanization, automation, and acceleration of mental labor," noted Zhou, "it will have great meaning for the development of the society's productive forces."[726]

Zhou's foray into theories of writing, technology, and mental labor are potent reminders of information infrastructures and political economy that I have underlined throughout this dissertation as the main impetus behind script reform. What is absent in Zhou's narrative, however, is the other side of the *pinyin* coin: its export into the ethnic minority regions. In the 1950s, as the invention and recognition of nationalities became one of the defining features of the PRC, *pinyin*-ization turned into a supranational project of communication engineering with a highly imperialist tinge. Reminiscent of the KMT's frontier script engineering projects that had failed, the PRC scientists, most of whom were trained in the 1930s and 1940s under the auspices of the Insitute of History and Philology, were dispatched to the ethnic minority regions.[727] And again much like its predecessor, PRC engineers in the frontiers encountered serious obstacles, and eventually failure. The aspirations, however, offer a glimpse into the PRC as the last empire of letter.

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[726] Youguang Zhou, "*Hanzi gaige gailun [1961]*," in Youguang Zhou, *Zhou Youguang wenji*, vol. 1 (Beijing: Zhongyang bianyi chubanshe, 2013), 255-256.

[727] On ethnic minority classification, see, Thomas Mullaney, *Coming to Terms with the Nation: Ethnic Classification in Modern China* (Berkeley: University of California Press, 2011).

III. Frontier Pinyinization

The PRC's frontier pinyinization project incorporated more elements from the KMT's Phonetic Symbolization Movement than the Soviet Union's Latinization Movement. It was indeed similar to the USSR in the sense that it was intimately linked to the invention of ethno-nationalities, but the historical contexts of Latinization and pinyinization were very different. In the USSR of the 1920s and 1930s, Latinization had started as a Turkic project, and even though it did not receive the support of every Turkic intellectual, it was clear that the Latin Alphabet was not simply imposed on them by Moscow. In contrast, *pinyin* was an alien technology for the nationalities inhabiting the PRC's frontiers, and it was imposed by Beijing. Moreover, again in contrast to the internationalism of the 1920s and 1930s, the PRC's investment in *pinyin* followed the KMT's penchant to turn Mandarin into the main token of exchange among Han and non-Han communities. Teaching Mandarin to non-Han came prior to advancing the cultural technologies of the nationalities, which used to be, for better or for worse, the Soviet project. The continuity from the KMT-era into the PRC is detectable even at the level of experts involved in minority script reforms. Luo Changpei from the IHP, who conducted surveys on diverse languages in the 1940s, acted as the director of the Institute of Linguistics at the Chinese Academy of Sciences, and oversaw the minority script reforms until his death in 1958.[728] Another linguist Fu Maoji, who was trained by the IHP's Li Fanggui in the Southwest, was the chair of the Department of Minority Languages of the Institute of Linguistics, and led minority script reforms after Luo's death.[729] Right after the invention of *pinyin* in 1958, frontier pinyinization followed the logic of

[728] Changpei Luo, "Yuyanxue zai yunnan," in Luo Changpei, *Yuyan yu wenhua* (Beijing: Beijing chubanshe, 2004), 200-220.

[729] Minglang Zhou, *Multilingualism in China: The Politics of Writing Reforms for Minority Languages, 1949-2002* (Berlin: Mouton de Gruyter, 2003), 158-159.

empire, as efficiency in the instruments of literacy turned out to be the weapon of imperial domination. The implementation of *pinyin* and Mandarin was not unlike Churchill's intention to use Basic English to build "an empire of the mind."[730]

It had not started as such, however. From 1949 to 1957, script and language reform in the ethnic minority regions enjoyed a degree of freedom, in which the minorities were encouraged to determine the future of their own writing systems and cultural technologies. As the frontier regions were still crucial for national security, the CCP followed affirmative policies reminiscent of the early years of the USSR, and chose to implement measures that would not alienate the ethnic minorities. During the first national conference on minority education in 1951, the Ministry of Education of the State Council carefully outlined the non-assimilationist script and language reform policies, noting that "in minority communities with regularly used writing systems, such as Mongol, Korean, Tibetan, Uyghur, Kazakh, etc., native languages must be used as the medium of instruction."[731]

In regions where the Chinese Academy of Sciences (CAS) did not possess much linguistic expertise, such as in Xinjiang and Inner Mongolia, national self-determination and the place of scripts in it were even more pronounced, sometimes with aid from the Soviet Union. As part of the Sino-Soviet Treaty of Friendship, Alliance and Mutual Assistance, signed in 1950, Soviet experts were assisting the socialist state-building in China in a variety of enterprises, including

[730] Rodney Koeneke, *Empires of the Mind: I. A. Richards and Basic English in China, 1929-1979* (Stanford: Stanford University Press, 2004), 187. Pinyinization was concomitant with the resettlement of Han immigrants into the frontiers. See, James Millward and Nabijan Tursun, "Political History and Strategies of Control," in *Xinjiang: China's Muslim Borderland*, edited by S. Frederick Starr (Armonk, NY: M. E. Sharpe, 2004), 90; Gregory Rohlf, *Building New China, Colonizing Kokonor: Resettlement to Qinghai in the 1950s* (Lanham: Lexington Books, 2016), 69-100.

[731] *Shaoshu minzu jiaoyu gongzuo wenjian xuanbian, 1949-1988* (Hohhot: Inner Mongolian Education Press, 1991), 28-39, quoted in Minglang Zhou, *Multilingualism in China*, 48.

script reform.[732] With an added layer of optimism after Kruschev's secret attack on Stalinism in January and February, 1956, which was instrumental in the launching of the Hundred Flowers Campaign in China that allowed intellectuals to voice their dissatisfaction with the regime, the CAS invited experts from the Soviet Union to devise scripts for Turkic nationalities.[733]

In 1956, Edkhiam Rakhimovich Tenishev (1921-2000) was dispatched to China by the USSR Academy of Sciences. Born in Penza to a Tatar family, Tenishev spent his childhood in Kyrgyzstan, and studied at the Oriental Institute of Leningrad State University before writing his dissertation on the Golden Light Sutra composed in Old Uyghur. After receiving the invitation from the Chinese Academy of Sciences, he took a quick trip to Leningrad to visit his mentor Sergei E. Malov (1880-1957), the most well-known Russian Turcologist who had taken two separate trips to Eastern Turkestan earlier. Soon afterwards, Tenishev flew to Beijing, whence his journey into Xinjiang began. Meeting with the famous Chinese Turcologists, such as Li Sen, and Uyghur intellectuals and politicians, such as Burhan Shahidi, Seypiddin Eziz, and Alqam Akhtam, Tenishev arrived in Xinjiang in August 1956. He immediately started devising Cyrillic alphabets for the Uyghurs, Kazakhs, and Kyrgyzs living in the region. During a conference on August 22, the Cyrillic proposals for these three languages were accepted, to Tenishev's surprise, unanimously.[734] The new Cyrillic script for the Uyghurs composed of 33 letters, for the Kazakhs of 42 letters, and for the Kyrgyz of 36 letters.

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[732] Austin Jersild, *The Sino-Soviet Alliance: An International History* (Chapel Hill: The University of North Carolina Press, 2014).

[733] Roderick MacFarquhar, *The Origins of the Cultural Revolution, vol. 1: Contradictions among the People, 1956-1957* (New York: Columbia University Press, 1974), 48-51.

[734] E. R. Tenishev, *U Tiurkskikh Narodov Kitaiia (Dnevniki 1956-1958 gg.)* (Moskva: Nasledie, 1995), 5-18.

A similar development took place in Inner Mongolia, also with involvement from the Soviet experts Georgii P. Serdiuchenko and his wife Buliash Kh. Todaeva.[735] In an effort to allow an informational unity between Outer Mongolia and Inner Mongolia, Cyrillization of Mongolian was a highly debated issue in Inner Mongolia. In 1955, linguists in Mongolia started comparing the advantages and disadvantages of Cyrillization and a reformed writing system in the Mongolian script. In May, 1956, representatives from various Mongolic nationalities—Mongolians, Daur, Dongxiang, Tu, and Bao'an—convened for a conference on script reforms, but there were disparate voices. Some proposed to adopt the New Mongolian Script (*xin mengwen*), promulgated earlier in 1955, as their main method of inscription, rather than Cyrillic or Latin alphabets. During the conference, some further claimed that a separate script, either Cyrillic or New Mongolian, should be devised for Daur, Dongxiang, Tu, and Bao'an nationalities.[736] But the conference ended with the acceptance of a Cyrillic writing system for Mongolian, which became the official script until the predominance of *pinyin* in 1958 challenged the newly established order.[737]

Tenishev's involvement in the Cyrillization of Turkic languages and the Mongolic nationalities' debates about the New Mongolian Script and the Cyrillic Alphabet were a reflection of the political atmosphere in 1955-56. Script and language reforms followed diverse paths that depended on regional politics. For Uyghurs, Kazakhs, and Kyrgyzs in Xinjiang, at least for those who participated in the conference, sharing the same script with their ethnic kins who lived in the USSR was a justified request, hence the unanimity of votes. In Inner Mongolia

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[735] Todoeva was involved in these reform projects, but the extent of her involvement is unclear. See, Tuodayewa, *Youguan zhongguo menggu yuzu yuyan he fangyande yanjiu wenti* ([Beijing?] Minzu yuwen kexue taolunhui yin, December, 1955).

[736] *Menggu yuzu yuyan kexue taolunhui jueyi* (Menggu yuzu yuyan kexue taolun mishuchu yin, 29.5.1956), 1-3.

[737] Minglang Zhou, *Multilingualism in China*, 290-299.

as well, the adoption of either a Cyrillic Alphabet or the New Mongolian Script mirrored the communication politics that the reformers sought to establish between Outer Mongolia and Inner Mongolia. The acceptance of both requests by the State Council displayed the new government's willingness to give voice to the nationalities themselves.

The making of native lexicons also followed a similar path during this period. Until 1958, Han linguists and scientists working in the borderlands were self-conscious about their status in the ethnic frontiers. As part of the nationalization policy, invention of national vocabularies was a particularly thorny issue, especially since the linguists were cautious about the import of Mandarin loanwords, which they believed projected Han chauvinism—a taboo subject that even Mao had cautioned against.[738] Abandoning the use of Mandarin loanwords seemed the natural way to break out of Han chauvinism while linguistically defining and inventing the borders of native languages.

Strange as it may seem, de-Sinification of national vocabularies was not always welcomed by native scholars. In Inner Mongolia, a debate about the term "cadre (Ch. *ganbu*)" helps explain this point. Since 1949, *ganbu* had become commonplace for Mongolian speakers in referring to cadres. Chinese linguists who were not fluent in Mongolian and thus did not know much about the Mongolians' daily use of speech, however, argued that the term *ganbu* was in Mandarin, and should thus be changed into a Mongolian word that translated as "mature strength (*chengshu liliang*)" so as to avoid Han chauvinism. Observing that the word did not make sense to anyone, they at last decided to borrow from Russian, and started using *kadr*, assuming that *kadr* would be welcomed more by the Mongolians than *ganbu*. As opposed to their rather benign intentions, however, many Mongolians were not fond of this change. A prominent Inner Mongolian linguist,

[738] Minglang Zhou, ibid., 46.

Chinggeltei (1924-2013), who wrote the first modern Mongolian grammar book in China, argued against it. *Ganbu*, he claimed, was already used by Mongolians in daily life, what was the point of changing it? It seemed that this arbitrary shift only brought trouble. In addition, speaking in the Scientific Conference on Minority Nationalities' Languages and Scripts in 1958, he noted that to Mongolian ears, *kadr* sounded like a domestic animal disease, which was probably worse than saying *ganbu.*[739]

Unexpectedly problematic as they could be, the intentions of the Han linguists during this early period were more progressive than what ensued in the next few years. In late 1957, as relations with the Soviet Union were deteriorating, Premier Zhou Enlai informally asked the Chinese Script Reform Commission to draft a plan for directly overseeing minority script reforms, which was a clear break from allowing the minorities to determine their own futures. The Commission convened in October to pinyinize the Chinese-derived writing system of the Zhuang, the largest ethnic minority group living in the Southwest. The report that the Commission subsequently drafted suggested the adoption of *pinyin* for all the minority scripts in China. In December, the principles of all-nation pinyinization were approved by the State Council, and immediately afterwards, the Scientific Conference on Minority Nationalities' Languages and Scripts was convened from March 28 to April 16, 1958. Coterminous with the Great Leap Forward, the State Council sought a devastating leap in the linguistic and informatic unification of all nationalities.[740]

In Zhou Youguang's words, pinyinization of all scripts would be "beneficial for all nationalities in studying each other's languages and scripts, exchanging new terminologies, and

[739] *Di er ci shaoshu minzu yuwen kexue taolunhui, dazibao huiji, di er ji, 3/30* (Di er ci shaoshu minzu yuwen kexue taolunhui jianbaozu yinfa, 1958), 10.

[740] Minglang Zhou, *Multilingualism in China*, 58-59.

jointly making use of technological apparatuses, such as print, typewriters, and telegraphy, to progress towards cultural unity."[741] In reality, frontier pinyinization after 1958 closely resembled the KMT's Phonetic Symbolization Movement and the Soviet Union's Cyrillization Movement. During the Scientific Conference, Fu Maoji, who had just returned from a trip to the Soviet Union, took stage to expound on the experiences of the USSR, and endorsed the two developments that were central to linguistic planning after the demise of Latinization. The Cyrillization of all scripts and the predominance of Russian language were the new model for the PRC, as the goal was to make Mandarin the lingua franca for all nationalities, and engineer national lexicons accordingly.[742]

During the Scientific Conference, Han and non-Han linguists and reformers coming from different minority regions had disparate visions for the road ahead. Pinyinization of Daur, for instance, was a major subject of debate. According to the resolutions of the Conference on Mongolic Languages in 1956, Daurs were supposed to have either a Cyrillic or a New Mongolian script, but with the new pinyinization wave, both proposals fell on deaf ears, and even its pinyinization raised issues that were not discussed earlier. Some linguists claimed that the Daurs themselves were demanding a script, hence the need to invent one. Others, however, claimed that 80% of more than ten thousand Daurs coming from Qiqihaer could already speak Mandarin. What was the purpose of pinyinizing Daur script, when a majority of the people could speak Mandarin?[743] Similar claims were made for other nationalities as well. Among the Qiang

[741] Zhou, "Hanzi gaige lun," 257-261.

[742] Maoji Fu, "Sulian minzu yuwen fazhande qingkuang he jiejue minzu wenzi wentide jingyan [originally published in *Kexue tongbao*, no. 11 (1958)]," in Maoji Fu, *Fu Maoji xiansheng minzu yuwen lunji* (Beijing: Zhongguo shehui kexue chubanshe, 1995), 237-256.

[743] *Di er ci shaoshu minzu yuwen kexue taolunhui, dazibao huiji, di san ji, 3/31* (Di er ci shaoshu minzu yuwen kexue taolunhui jianbaozu yinfa, 1958), 1.

nationality in the Southwest, one linguist claimed that 70-80% of the population could already speak Mandarin, so there was no need to pinyinize Qiang speech. Among the Tu nationality in Hunan, some pointed out that more than 51% could speak Mandarin, hence the futility of pinyinizing it. Others further claimed that most of the Wen people in Hainan (*wenzu* 艾族, which was not even recognized as a nationality in the end) did not even speak their own language (!). A certain part of the Miao people, known to speak "sour soup speech (*suantanghua* 酸湯話)," was also denied a script, since it sounded similar to Mandarin spoken in Hunan.[744] It should be noted that these claims about the number of Mandarin speakers among ethnic minority populations relied more on hearsay and arbitrary observation than actual statistical work. But even so, it disclosed one of the main purposes behind pinyiniziation, i.e., the spread of Mandarin among nationalities, as opposed to helping develop their own cultural technologies.

In 1959, the draft of a *pinyin* dictionary was printed by the Institute of Linguistics for Minority Nationalities, supposedly as a model for imposing Mandarin terminologies to all nationalities, but the success of the movement was dubious.[745] The Zhuang writing system was immediately pinyinized in 1958. In some cases, as in Gelao languages in the southwest, certain terms were inserted with slight phonological differences.[746] But places where the Central Government had less control over the population and more resistance, terminologies did not give way to Mandarin renderings, and *pinyin* never became the main script in use. Yu Xixian, a Han scholar conducting linguistic and literary work in Tibet, for instance, claimed that pinyinized Mandarin was certainly the correct approach for inventing new Tibetan terminologies, but

[744] ibid., 10-11.

[745] *Xinci shuyu cidian, hanyu gaoben, di yi ji* (Beijing: Zhongguo kexueyuan shaoshu minzu yuyan yanjiu suo, 1959).

[746] Zhou minglang, ibid., 350-354.

Tibetan was never pinyinized.[747] Similarly, pinyinization was never carried out for some minority writing systems, such as Sibe and Koreans. For others, such as Yi and Dai nationalities, pinyinization started officially in 1958, but did not proceed as quickly as was hoped for, and it failed in the end, as the nationalities in question continued to use their own scripts.[748] Linguists also attempted to pinyinize Mongolian from 1958 to 1966, while the number of Mandarin loanwords in Mongolian gradually increased in tandem with propaganda work.[749] Even though the debates about Mongolian pinyinization continued until the end of the Cultural Revolution, it was never implemented.[750] Neither in Xinjiang were the prospects of pinyinization clear. The project started in 1958, but the *pinyin* alphabets of Kazakh and Uyghur were not determined until 1964, and the extent of the movement's popularization is unclear.[751]

Pinyinists after 1958 made constant references to printing, typewriters, and cultural advancement to justify the efficiency and progress they sought after, but as opposed to the Latinists in the Soviet Union who ventured into engineering new machinery for nationalities, such as telegraphic codes and typewriters, the available evidence suggests that the PRC never built typewriter factories for advancing bureaucratic and literary efficiency in the pinyinized frontiers, nor did they engineer codes for telegraphic communication among nationalities. Neither the Uyghurs nor the Mongols, for instance, were given the right to use the telegraph in

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[747] *Di er ci shaoshu minzu yuwen kexue taolunhui, dazibao huiji, di er ji, 3/30*, 11.

[748] *Zhongguo shaoshu minzu yuyan wenzi qingkuang jianbiao (neibu cankao)* (Zhonghua renmin gongheguo minzu shiwu weiyuanhui wenjiaosi bianzhi, Feb. 1958); David Bradley, "Language policy for China's minorities: Orthography development for the Yi," *Written Language and Literacy* 12:2 (2009), 179.

[749] Minglang Zhou, ibid., 351; Caodaobateer, "The Use and Development of Mongol and Its Writing Systems in China," in *Language Policy in the People's Republic of China*, edited by Minglang Zhou and Hongkai Sun (Boston: Kluwer Academic Publishers, 2004), 297.

[750] Minglang Zhou, ibid., 116-119.

[751] "Guowuyuan guanyu tuixing weiwuer, hasake liangge xin wenzi fangan wenti de pifu," *Wenzi gaige* 1 (1965), 1; Minglang Zhou, ibid., 299-308.

their own scripts until the 1980s, which suggests that the information infrastructure in China was exclusively Chinese, dominated by Han.[752] The PRC engineers and linguists were invested in frontier pinyinization solely as an instrument of governance, information management, and linguistic assimilation.

In short, from 1958 to 1966, despite the government's sternly assimilationist will, pinyinization in the frontiers followed an uneven path, and complete pinyinization of all nationality scripts never took shape. The sociotechnical aspects of imperial pinyinization during this period still awaits scrutiny. As I have argued throughout this dissertation, language politics is inextricably linked to the infrastructural technologies of languages and the social world constituted around their organization and use. Further research on this period in PRC history may be productive to demonstrate how the infrastructural issues around *pinyin* challenged the social orders constituted through native cultures of information, scripts, and technologies in the frontiers.

Conclusion

By the time the Cultural Revolution started in 1966, the future of the movement was far from resolute; and with the decade-long political turmoil, pinyinization also lost its brain power and institutional support, as the leading pinyinists were either sent to labor camps or put in jail. With the sudden change of political atmosphere, *pinyin* was regarded as an instrument of foreign imperialism, and pinyinists as imperialist running dogs. Ni Haishu, the chronicler of Latinization whose alleged last words on his deathbed were "Long Live Script Reform (*wengai wansui*)," was

[752] Shiwei Weng, "Woguo shouchuangde weiwen dianbao," *Zhongguo minzu* (Mar. 2, 1986); Gendao'er Ji, "Mengguwen biaozhun dianma," *Neimenggu minzu shiyuan xuebao* (July 1, 1980).

beaten up severely by the rebel faction before being sent down to a labor camp.[753] Zhou Youguang, who could rightly be called the PRC's Cang Jie, and Ye Laishi also suffered a similar fate, spending two to three years in Pingluo, Ningxia, where the State Council's May 7 Cadre School, i.e. re-education camp, was located.[754] Even Xiao San, the first biographer of Mao Zedong and certainly the most prominent figure in the history of Chinese Latinization, was jailed for seven years (1967-1974).[755]

Pinyin occupied a strange place during the Cultural Revolution. By the time Zhou Youguang and Ye Laishi returned from the labor camps to Beijing in 1972, the Chinese Script Reform Commission existed in name only, and *pinyin* was still a taboo. When Guo Moruo, the first director of the Chinese Academy of Sciences, asked Zhou and Ye to compile Xinhua Encyclopedia (*xinhua zidian)*, their major concern was about the use of *pinyin* to spell out the characters. The use of *pinyin* in school textbooks was even a bigger problem, as the publishing houses were uncertain about the political repercussions. Both issues were resolved only with Premier Zhou Enlai's intervention, who finally allowed the use of *pinyin* in textbooks and encyclopedic compilation.[756] In short, for the Han, *pinyin* was a highly politicized technology during these years.

What made *pinyin* even stranger was the place it occupied in the ethnic frontiers. While it was demeaned as a tool of imperialism in Beijing, frontier pinyinization was still an ongoing project throughout the Cultural Revolution, even if it encountered serious resistance in many of

[753] Interview with Su Peicheng on May 18, 2015.

[754] Youguang Zhou, *Zhou Youguang bainian koushu*, 378-379, 422.

[755] Eva Siao, *Women yijian zhongqing — wo yu Xiao San*, trans. Zhu Yandong (Beijing: Zhongguo qingnian chubanshe, 2011), 293-306.

[756] Youguang Zhou, ibid., 422-423.

the ethnic minority regions. Rejection of foreign imperialism, it seemed, did not preclude the implementation of a domestic one, even if its power base was seriously undermined. This split consciousness may indeed be reckoned as an extension of centuries-long Han-centrism coupled with the aftermath of wartime geopolitics, when ethnic minorities first entered the political consciousness of Han scientists and statesmen as indispensable components of national security and state-building. *Pinyin*, like its predecessor Phonetic Symbols, never conquered the minds of the non-Han, but the bifurcation of communication engineering into Han and non-Han reflected deeper racial and political problems that continued to haunt "national unity" in the PRC in the decades ahead.

After all the havoc wreaked by the decade-long Cultural Revolution, pinyinization was noticeably coming to an end. Yet, it was not officially annulled until a decade after. It was true that the replacement of Chinese characters with *pinyin* was indefinitely postponed in the 1950s, but pinyinization was integral to the PRC's frontier colonization, even if it was clearly failing. Why, then, did the State Council of the PRC officially announce as late as in 1986 that *pinyin* was not going to replace Chinese characters? The epilogue offers a preliminary response to this major change in information politics in the PRC, which put an end not only to a century of script reform among the Han community, but also to frontier pinyinization.

Epilogue: Toward Digital Codes

In January, 1986, the National Conference on Language Work was convened in Beijing under the auspices of the Central Committee of CCP and State Council with over 280 attendees. It was a milestone in the history of script reforms. After almost a century of intense debates, trials, errors, failures, and momentary triumphs, it was decided in the National Conference that pinyinization was not going to be a separate project, and that *pinyin* was going to be used only as an auxiliary method to teach and write in Chinese characters. On the surface, the decision seems to be a natural outcome of the demise of pinyinization that had been in the making since the 1950s. After all, when *pinyin* was ratified in 1958, its chances of becoming a stand-alone alphabetical system were already slim. During the Cultural Revolution, pinyinists were disparaged, ridiculed, and penalized as pawns of Western imperialism; and after the CR, even though *pinyin* enjoyed a revival, it did not possess the institutional power to replace the Chinese characters. As a matter of fact, the main debate about script reform in the aftermath of the Cultural Revolution was taking place around the issue of character simplification, not pinyinization, as scholars have pointed out.[757]

This narrative, however, raises more questions than it answers. If *pinyin* was already a failed project—and I would argue that it was—why did the verdict come as late as 1986? Was there simply a bureaucratic delay in putting an end to pinyinization due to post-CR political turmoil? Or were there forces at play that are not immediately visible to an outside observer? Since the documents related to the Conference are still out of reach, the aura of secrecy around the end of pinyinization invites speculation.

[757] Shouhui Zhao and Richard B. Baldauf have meticulously pieced together the scattered information about this decision and the politicized environment that led to it. See, Shouhui Zhao and Richard B. Baldauf, *Planning Chinese Characters: Reaction, Evolution or Revolution?* (Dordrecht: Springer, 2008), 56-69.

As an endnote to this dissertation, I would briefly like to suggest two major reasons that led to the 1986 decision, both of which call for future scrutiny. The first one requires us to reconsider the history of pinyinization in the PRC predominantly as a *non-Han* phenomenon. As I have pointed out in the last chapter, information and linguistic management of the ethnic frontiers was an integral part of language and script reforms since the War Against Japan. Especially during the Cultural Revolution, *pinyin* led a double life—it was abandoned for the Han, but imposed on the non-Han, who vehemently resisted it. By the 1980s, frontier pinyinization was indeed a fiasco, not unlike what happened in the 1930s in the Soviet Union. Thus, it seems more reasonable to claim that the 1986 decision was taken in Beijing to put an official end to the pinyinization of the frontiers, not to the pinyinization of the Chinese characters.

The second reason, which is also intimately connected to frontier management, leads us back to the social lives of linguistic infrastructures. The end of pinyinization in the PRC was a pivotal historical event that took place within a new infrastructural environment shaped by computerization and the binary code, which changed the social patterns of information production both for the Han and the non-Han communities. It was only with the computerization projects starting in the late 1970s that frontier pinyinization left its place to the development of new technologies for information processing in ethnic minority scripts. The end of pinyinization and the beginning of computerization, in other words, took place simultaneously in the PRC, and the non-Han communities were an integral part of the entire process.

Like the history of script reforms in an industrializing knowledge economy, the history of computerization in the PRC was part of a global history of computers and a nascent post-industrial knowledge economy. This history began in Moscow, Harbin, and Beijing in the 1950s,

when Soviet and Chinese engineers launched the first efforts to bring automation to Chinese language and writing. The same years witnessed the introduction of cybernetics to the PRC with the return of Qian Xuesen (1911-2009) from the US, who was the first Chinese cybernetician, chief engineer of rocket sciences, and the leader of the space program. As Japan, Korea, and Taiwan also took part in the Cold War "code race" in the 1960s and 1970s, the PRC started to develop better information processing technologies. The first major push came with the 748 Engineering Program (748 *gongcheng*)—the project to develop information processing systems for Chinese characters—initiated by Premier Zhou Enlai in August, 1974.[758] As the PRC emerged out of the turbulent years of the Cultural Revolution, information processing became one of the main projects to organize knowledge in a post-socialist economy. The following decade saw an anarchy of codes, as dozens of engineers started developing new input and retrieval technologies for Chinese characters. By 1989, there were more than five hundred input methods for Chinese characters.[759]

Computerization of Chinese characters brought a concomitant endeavor to computerize non-Han writing systems as well, which ran against the earlier pinyinization efforts. Using new methods to technologize non-Han languages indeed started around the same time that Zhou Enlai launched the 748 Engineering Program. In 1973, the acclaimed Tibetologist Yu Daoquan, who was one of the proponents of machine translation in the 1950s, began working on a numerical method to process Tibetan syllabaries, which he completed in 1977, and it became the basis on which Tibetan information processing was managed from the 1980s onward.[760] Mongolian script

[758] Xuan Wang, *Wang Xuan Wenji* (Beijing: Beijing daxue chubanshe, 1996), 1-41.

[759] Zhiwei Feng, *Xiandai hanzi he jisuanji* (Beijing: Beijing daxue chubanshe, 1989), 43.

[760] Daoquan Yu, "Zangwen shuma daizi," *Minzu yuwen* (1982), 1-7; Liansheng Zhang, "Zangwen haoma daizi jiqi jisuanji paisuo," *Yuyan yanjiu*, no. 2 (1983), 35-40.

underwent a similar transformation during the same years. In 1980, a numerical system was devised for the Mongolian script, and implemented for Mongolian telegraphic communication.[761] By 1986, developments in Mongolian information processing systems had grown to include input methods for typing in Mongolian, developed by Mongolian and Chinese computer scientists in the PRC and at IBM.[762] Uyghur language and script followed a similar trajectory. In 1986, the Uyghurs were given the right to use telegraphic communication in their own script, and in 1988, Uyghur computer scientists were developing computerized information processing technologies for the Uyghur's Arabic script.[763] Yi script also underwent the same process in the 1980s, and other minority scripts followed in the ensuing years.[764]

The year 1986 was indeed a critical turning point. As the National Conference was issuing the final decree for the end of pinyinization, Deng Xiaoping (1904-1997), the leader of the PRC, was busy initiating the second phase of computerization. In March, 1986, only two months after the National Conference, Deng announced the "863 Program" (863 *jihua*) that instituted a country-wide project to develop new computing technologies both for the Han and the non-Han.[765] The overlap between the two announcements was therefore not a coincidence. It instead signaled the end of an imperial era and the beginning of a new one, in which a socialist multi-

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[761] Gen-dao-er Ji, "Mengguwen biaozhun dianma," *Nei menggu minzu shiyuan xuebao (shehui kexue hanwen ban)* (July, 1980), 55-60.

[762] Ridi Ga and Zhu Zhang, "Mengwen xinxi chuli yanjiu yu sheji," *Jisuanji yanjiu yu fazhan*, vol. 23, no. 12 (1986), 39-44; Dehua Qi, "Mengwen duyin shuru fangfa," *Nei menggu daxue xuebao (zhexue shehui kexueban)*, no. 3 (1992), 104-110.

[763] Shiwei Weng, "Woguo shouchuangde weiwen dianbao," *Zhongguo minzu* (1986), 38-39; Wu-shou-er Si-la-mu, "Dui weiwen xinxi chuli yong sanxiang biaozhunde tantao," *Zhongwen xinxi xuebao,* vol. 1, no. 4 (1988), 61-66.

[764] Sha-ma-la-yi, "Jisuanji yiwen xinxi chuli yanjiu," *Xinan minzu xueyuan xuebao (zhexue shehui kexueban)*, vol. 21 (Aug., 2000), 42-46.

[765] Xiaofeng Yang, "1986-2001 nian guojia 863 jihua chengguo tongji yu fenxi," *Xiandai qingbao*, no. 5 (May, 2007), 37-40.

national polity was turning into a computerized network of nationalities under a new economic and governmental order.

Information processing technologies, computer codes, and software protocols are the new infrastructural media that bring possibilities, challenges, and limits to define the place of the human in an ever-growing economy of knowledge. Reminiscent of a century of script engineering that triggered excitement, amusement, despair, and frustration worldwide, the new codes induce conflicting emotions. Hopes for a better society are entangled with anxieties about the future of corporate capitalism, artificial intelligence, state surveillance, digital labor, and even the humanities. As information politics continues to determine the future of societies, history becomes the ground on which different pasts can be excavated and alternative futures be imagined.

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